Five-Year Review Report

Fourth Five-Year Review Report
for
Cannons Engineering Bridgewater Superfund Site
Town of Bridgewater
Plymouth County, Massachusetts

September 2010

Prepared by:

The United States Environmental Protection Agency
Region 1, New England
Boston, Massachusetts

EPA New England

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U.S. EPA, New England

Date: 9/22/10

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ACRONYMS

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ACEC	Area of Critical Environmental Concern
ARAR	Applicable or Relevant and Appropriate Requirement
COC	Contaminant of Concern
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
DEQE	Department of Environmental Quality Engineering
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FS	Feasibility Study
LTMP	Long-Term Monitoring Program
MassDEP	Massachusetts Department of Environmental Protection
MASSGIS	Massachusetts Geographical Information System
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MCP	Massachusetts Contingency Plan
mg/kg	milligrams per kilogram
MMCL	Massachusetts maximum contaminant level
MSR	Management System Review
MOM	Management of Migration
MTBE	Methyl-tert butyl ether
NOAA	National Oceanic and Atmospheric Administration
NPL	National Priorities List
OSWER	Office of Solid Waste and Emergency Response
PAH	Polycyclic aromatic hydrocarbons
PCB	Polychlorinated biphenyl
PCE	Tetrachloroethene
Plan	Long-Term Monitoring Plan
PPA	Prospective Purchaser Agreement
ppb	parts per billion
ppm	parts per million
PRP	potentially responsible party
RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
ROD	Record of Decision
RP	Responsible Party
SARA	Superfund Amendments and Reauthorization Act
Site	Cannons Engineering Bridgewater Superfund Site

SVOC	Semi-volatile organic compounds
TCE	Trichloroethene
µg/L	micrograms per liter
VOC	Volatile organic compound

ES EXECUTIVE SUMMARY

This is the fourth five-year review for the Cannons Engineering Bridgewater Site (Site). This five-year review focuses on the Management of Migration (MOM), or groundwater remedy, and was completed in accordance with U.S. Environmental Protection Agency (EPA) Guidance OSWER No. 9355.7-03B-P (EPA, 2001).

Although this Fourth Five Year Review focuses on the MOM remedy, this report (and the previous three reviews) also evaluated the protectiveness of the Source Control Remedy. The re-evaluation of the soil cleanup levels for PCBs and PAHs (which also included a review of the toxicity factors) were found to be within EPA's acceptable risk range. The achievement of the soil cleanup goals for the Source Control Remedy was documented by EPA in a Preliminary Close-out Report (EPA 1991). A detailed review of the Source Control cleanup levels is discussed in detail in Section 7.2.

The Site is located on First Street, in a small industrial park in Bridgewater, Plymouth County, Massachusetts. The industrial park is located off of Elm Street, in the area west of Elm Street and east of Route 24. The Site is bordered by commercial/industrial operations to the north, wetlands and a drainage canal to the south, First Street to the east, and Route 24 (Amvets Memorial Highway) to the west. The Site is comprised of three parcels of land: Lots 3A, 4, and 4A.

Cannons Engineering Corporation operated in Bridgewater from 1974 until 1980. The Site was developed to transport, store, and incinerate hazardous wastes. The facility's license was revoked in 1980 and operations ceased at that time. Prior to removal and remediation activities, the on-site soils, sediments, buildings, groundwater, and surface waters were contaminated to varying degrees with one or more of the following: volatile organic compounds (VOCs); polychlorinated biphenyls (PCBs); polycyclic aromatic hydrocarbons (PAHs); pesticides; and metals, such as iron, selenium, manganese, lead, and silver.

The state completed a removal action in 1982. The Site was placed on the final National Priorities List (NPL) on September 8, 1983. The Record of Decision (ROD) for the Site was signed on March 31, 1988. The ROD selected a source control and a management of migration

remedy for the Site. A Consent Decree was entered into between the potentially responsible parties (PRPs) and EPA in 1989.

The source control remedy included on-site thermal aeration (also known as thermal desorption) to remove VOC contamination from upland area and wet area soils to levels below cleanup levels established as part of the remedial design process. The remedy also included excavation and off-site incineration of soils contaminated with PCBs in excess of 9 parts per million (ppm). The source control remedy was completed in 1991.

The management of migration (MOM) portion of the remedy specified in the ROD includes restricting the use of groundwater at the Site by the use of a deed restriction/institutional controls, installing additional monitoring wells, and implementing a long term groundwater water quality monitoring program to observe the presence, distribution and migration of contaminants, if any. The ROD stated that removal and treatment of contaminated soils would eliminate sources of further groundwater contamination and that the low levels of contamination found in the groundwater would likely meet drinking water standards (e.g. federal maximum contaminant levels, or MCLs) through monitored natural attenuation over 20 years. The long-term monitoring program began in 1991; 19 years of the anticipated 20-year long-term monitoring program have been completed. In accordance with the ROD, the program includes sampling and analysis of groundwater, surface water, and sediment. Currently, 24 groundwater wells comprise the monitoring well network at upgradient and downgradient locations across the Site.

In September 1991, two deed restrictions that run with the land were recorded in the Plymouth County Registry of Deeds. The restrictions prohibit any groundwater use, prohibit excavation below the depth of the groundwater table without the prior approval of EPA and Massachusetts Department of Environmental Protection (MassDEP), and limit future use of the property to specific uses.

The review of site-related documents, data, and applicable or relevant and appropriate requirements (ARARs) indicate that the MOM remedy continues to function as intended by the ROD. This judgment has been made based on an evaluation of groundwater monitoring data that has been collected during the last 5 years of the long term monitoring program (LTMP), i.e. since the last five year review in 2005.

No changes in exposure pathways or land use have occurred since selection of the remedy. The area around, and including, the Site remains zoned for industrial use. In the late 1990s, the town sold approximately 2 acres of the Site (Lot 4A) to Osterman Propane, Inc. (Osterman), a privately owned propane storage and distribution dealer. The Town of Bridgewater retained ownership of Lot 4. Osterman established operations and regraded and redeveloped Lot 4A for industrial/commercial purposes. Since the last five year review, Osterman has further developed Lot 4A, expanding the parking area and adding a vehicle storage/maintenance building. The work was completed within the constraints of the deed restrictions. In the spring of 1998, Unisite/Omnipoint constructed a telecommunications relay tower on Lot 3A in the southeast portion of the Site. The deed restrictions mentioned above have been incorporated into the leases of the commercial entities that are now located on Lot 4A and Lot 3A.

Based on a trend analysis of the groundwater data from the annual monitoring events performed by the Responsible Party (RP) contractor from the start of the monitoring program through Year 17 (1991 – 2007), and groundwater monitoring data through Year 19, the concentrations of dissolved VOCs in groundwater appear to be naturally attenuating throughout the Site (Roux, 2009). VOC concentrations in groundwater monitoring wells at upgradient and perimeter locations indicate no migration of contaminants in groundwater from the Site at concentrations exceeding MCLs.

Groundwater data for metals, collected during Year 19, showed that the MCL for arsenic was exceeded in seven Site monitoring wells. Arsenic concentrations are expected to decrease as the aquifer gradually returns to a more oxidized state, however, additional sampling is recommended to confirm that this decrease is occurring.

Five-Year Review Protectiveness Statement:

The groundwater remedy for the Cannons Engineering Bridgewater Site is expected to be protective of human health and the environment upon completion, and in the interim, exposure pathways that could result in unacceptable risks are being controlled through institutional controls. The institutional controls/deed restrictions currently remain in place and there have been no additional violations of the restrictions. Institutional controls were included as part of the remedy to prevent the use of on-site groundwater for all water use purposes and to protect human health.

The source control remedy was documented by EPA as complete in 1991, and judged protective by EPA in the first two five-year reviews. The institutional controls/deed restrictions currently remain in place and there have been no additional violations of the restrictions. The institutional controls were also included to alert future property owners to potential site-related risks and to restrict certain future land uses, i.e., residential. No new information was encountered during this five-year review to indicate that the protectiveness of this remedy has changed. Therefore, the remedies for source control and groundwater are protective of human health and the environment.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name *(from WasteLAN)*: Cannons Engineering Corporation		
EPA ID *(from WasteLAN)*: MAD079510780		
Region: 1	**State:** MA	**City/County:** Bridgewater/Plymouth
SITE STATUS		
NPL status: Final		
Remediation status: Operating		
Multiple OUs?* No	**Construction completion date:** 1991	
Has site been put into reuse? Portions of two lots in commercial use		
REVIEW STATUS		
Lead agency: EPA		
Author name: Derrick Golden		
Author title: Work Assignment Manager/ Remedial Project Manager	**Author affiliation:** EPA Region I	
Review period: 3/1/10 to 9/30/10		
Date(s) of site inspection: May 14, 2010		
Type of review: Post-SARA		
Review number: 4 (fourth) **		
Triggering action: 3rd Five-Year Review – September 28, 2005		
Triggering action date *(from WasteLAN)*: 9/23/05		
Due date *(five years after triggering action date)*: 9/23/2010		

* "OU" refers to operable unit.
** Five-Year Reviews were completed in 1995, 2000, and 2005

Five-Year Review Summary Form, cont'd.

Issues:

- No sampling has been conducted for 1,4-dioxane, as 1,4-dioxane was not a well-known chemical at the time the monitoring plan was established.

- Groundwater concentrations in seven out of 24 Site monitoring wells exceeded the MCL for arsenic during the Year 19 monitoring event.

- Several town officials indicated that they were unfamiliar with the history of the Site and were not aware of the deed restrictions.

Recommendations and Follow-up Actions:

- RP to conduct analysis of groundwater samples for 1,4-dioxane in the Year 20 annual event and the data will be used in a cumulative risk assessment which needs to be completed prior to site closure.

- Prior to the next (2015) Five Year Review, additional groundwater sampling needs to be conducted to determine whether arsenic concentrations have decreased to levels below the MCLs

- Send the interviewed town officials a copy of this Five Year Review with a cover letter to reiterate the deed restriction requirements.

Protectiveness Statement(s): The groundwater remedy for the Cannons Engineering Bridgewater Site is expected to be protective of human health and the environment upon completion, and in the interim, exposure pathways that could result in unacceptable risks are being controlled through institutional controls. The institutional controls/deed restrictions currently remain in place and there have been no additional violations of the restrictions. Institutional controls were included as part of the remedy to prevent the use of on-site groundwater for all water use purposes and to protect human health

The source control remedy was documented by EPA as complete in 1991, and judged protective by EPA in the first two five-year reviews. The institutional controls/deed restrictions currently remain in place and there have been no additional violations of the restrictions. The institutional controls were also included to alert future property owners to potential site-related risks and to restrict certain future land uses, i.e., residential. No new information was encountered during this five-year review to indicate that the protectiveness of this remedy has changed. Therefore, the remedies for source control and groundwater are protective of human health and the environment.

Other Comments:

A final closeout report for the groundwater monitoring program must be issued when the cleanup target levels (e.g., MCLs) are achieved and the long term monitoring program is completed. A cumulative risk assessment will be performed and used to support the final closeout report.

As the results of EPA/OSWER's dioxin toxicity reassessment have currently not been finalized and have not been adopted into state or federal standards, the dioxin toxicity reassessment for this site will be updated during the next Five-Year Review or during evaluations for site closeout.

EPA and MassDEP will work with the RP group to address the above issues and ensure appropriate actions are taken to attain protective groundwater cleanup goals.

1.0 INTRODUCTION

The purpose of this five-year review is to determine if the remedy selected for the Cannons Engineering Bridgewater Superfund Site (Site) in Bridgewater, Massachusetts remains protective of human health and the environment. This report summarizes the five-year review process, investigations and remedial actions undertaken at the Site; evaluates the monitoring data collected; reviews, as appropriate, the ARARs specified in the ROD for changes; discusses any issues identified during the review; and presents recommendations to address those issues.

The United States Environmental Protection Agency, Region 1 prepared this five-year review pursuant to the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) §121 and the National Contingency Plan. CERCLA §121 states:

> *"If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews."*

The EPA interpreted this requirement further in the National Contingency Plan; 40 CFR §300.430(f)(4)(ii) states:

> *"If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action."*

The EPA conducted this five-year review of the remedial actions implemented at the Cannons Engineering – Bridgewater Site in Bridgewater, Massachusetts. Metcalf & Eddy│AECOM (M&E│AECOM) provided technical assistance to EPA in completion of the review under the EPA Response Action Contract (RAC) No. EP-S1-06-01, Task Order No. 46-FRFE-0127. Assistance was also provided by the MassDEP.

This is the fourth five-year review for the Cannons Engineering Bridgewater Site. The review is required by statute due to the fact that hazardous substances, pollutants, or contaminants

remain at the site above levels that allow for unlimited use and unrestricted exposure. The trigger for this statutory review is the signature date of the previous Five Year Review report on September 23, 2005. The review was completed in accordance with the EPA Comprehensive Five-Year Review Guidance, OSWER No. 9355.7-03B-P (EPA, 2001).

2.0 SITE CHRONOLOGY

The chronology of the Site, including all significant events and dates, is included in Table 2-1.

TABLE 2-1
CHRONOLOGY OF SITE EVENTS

Event	Date
Cannons Engineering Corp. begins operations at the Bridgewater site.	1974
Cannons operates as a hazardous waste storage, transport, and incineration facility under state license from the Massachusetts Department of Environmental Quality Engineering (DEQE) [now known as the MassDEP].	1974 - 1980
License revoked by DEQE; operations cease.	1980
Site inspections and investigations conducted by DEQE and EPA.	1980 - 1982
State-contracted removal action performed. Sludge and liquid wastes from on-site tanks and drums were removed to prevent potential release of contaminants into the environment.	10/1982
Site placed on the NPL.	9/1983
Bridgewater Industrial Park is the owner of record for Lot 3A.	1984
Lot 4 “taken” by the Town of Bridgewater.	3/1985
EPA notifies approximately 600 parties of their potential liability with respect to the Site. The PRPs form a steering committee. Negotiations result in development of two settlement agreements. The EPA proposes a de minimis settlement to resolve the liability of several hundred parties who contributed small amounts of waste to the Bridgewater facility. The second agreement is reached with 22 PRPs to conduct an emergency removal action at the Site.	1986
EPA releases a Wetlands Assessment that estimates the probability and magnitude of potential adverse environmental effects from exposure to contaminants associated with the Site.	4/1987
EPA releases a Remedial Investigation, and an Endangerment Assessment that estimates the potential impact to human health from exposure to contaminants associated with the Site.	5/1987
Feasibility Study completed.	1/1988

TABLE 2-1 (cont.)
CHRONOLOGY OF SITE EVENTS
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Event	Date
EPA issues ROD.	3/31/1988
PRPs commence the remedial action specified in the ROD under an EPA Administrative Order of Consent.	1988
EPA approves a Pre-Design Study report, which documents the full extent of contamination at the Site. The Settling Parties' contractor conducts a groundwater contaminant leaching modeling study and completes a report.	2/1989 and 6/1989
Consent Decree entered.	8/14/1989
Source control remedial action undertaken by the Settling, or Responsible Parties, with oversight by the EPA and the state.	11/1989 – 12/1990
The RP's contractor completes the MOM Remedial Design Report.	1/1990
RPs install new groundwater monitoring wells.	9/1990-11/1990
Management of migration component of the selected remedy implemented. This involved restricted use of groundwater at the Site and implementing a long term monitoring program.	1991
RPs commence the first quarterly round of a 20-year long-term monitoring phase of the MOM remedial action. The LTMP includes collection of groundwater, surface water, and sediment samples.	6/1991
Institutional controls (deed restrictions) imposed for Lot 4 and Lot 3A. EPA completes Superfund Site Interim Close-Out report.	9/1991
RP contractor completes Source Control Remedial Action Report.	10/1991
Long-Term Ground Water Monitoring Plan (Plan) describing the water quality monitoring program to be implemented at the Site is submitted to EPA by the RPs.	6/1992
Additional monitoring wells installed (MW-18 triplet).	10/1994
EPA completes First Five-Year Review.	6/1995
The Long-Term Ground Water Monitoring Plan is amended to reflect changes in monitoring frequency and addition of the MW-18 triplet.	3/1996

TABLE 2-1 (cont.)
CHRONOLOGY OF SITE EVENTS
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Event	Date
A portion of the town-owned land (Lot 4A) is redeveloped for use by a propane distributor.	1996 - 1997
Lot 4A sold to Osterman Propane, Inc. Lot 3A sold to Z & P, LLC.	1997
Uses and activities permitted under the Declaration of Restrictions for Lot 4A are expanded to include propane gas business uses and activities as well as groundwater monitoring uses and activities.	10/1997
Lot 3A leased. Omnipoint erects a monopole telecommunications relay tower. In so-doing, the Declaration of Restriction established as specified in the ROD is violated.	1998
Irwin Engineers, Inc. (Osterman's contractor) supervises installation of monitoring wells downgradient of septic leaching field on Lot 4A for the property owner.	11/1998
EPA provides a written notice of violation of the deed restriction for Lot 3A to the property owner, lessee, and Town of Bridgewater.	1999
EPA completes the Second Five-Year Review.	9/2000
The Long-Term Ground Water Monitoring Plan is amended a second time to incorporate EPA's low-flow groundwater sampling procedure.	2001
American Tower (Unisite) purchases communications monopole on Lot 3A.	6/2002
Lot 3A sold to Unison Site Management, Frederick, Maryland. American Tower continues to lease property.	11/2003
EPA completes the Third Five-Year Review.	9/2005
The Long-Term Groundwater Monitoring Program is amended to include metals in the Year 19 sampling event and to modify the SVOC analytical method.	8/2009
EPA completes the Fourth Five-Year Review.	9/2010

3.0 BACKGROUND

Cannons Engineering Corporation operated a facility in Bridgewater to transport, store, and incinerate hazardous wastes from 1974 until 1980. The facility's license was revoked in 1980 and operations ceased at that time. The Massachusetts Department of Quality Engineering (DEQE) completed a removal action in 1982. The Site was placed on the final NPL on September 8, 1983. The ROD for the Site was signed on March 31, 1988. The ROD selected a source control and a management of migration remedy for the Site. A group of settling parties, or RPs, entered into a Consent Decree with EPA in 1989 to implement the remedies specified in the ROD. The source control remedy was completed in 1991. Since 1990, sampling and analysis of groundwater, surface water, and sediment has been ongoing in accordance with the ROD, with modifications that are discussed in Section 4.2.

The Cannons Engineering Bridgewater Site is associated with three other NPL sites: Tinkham's Garage (Londonderry, New Hampshire), Sylvester (Nashua, New Hampshire), and Cannons Engineering Plymouth Harbor (Plymouth, Massachusetts).

3.1 Physical Characteristics

The Site is located on First Street, in a small industrial park in Bridgewater, Plymouth County, Massachusetts. The industrial park is located off of Elm Street, in the area west of Elm Street and east of Massachusetts Route 24 (Figure 3-1). Geographic coordinates of the property, as measured from First Street, are approximately 41°58'16.41'' north latitude and 71°1'30.44'' west longitude. The Site is bordered by commercial/industrial operations to the north, wetlands and a drainage canal to the south, First Street to the east, and Route 24 (Amvets Memorial Highway) to the west.

The Site appears on Bridgewater Tax Assessor's Map No. 71 and is comprised of three parcels of land covering approximately 7 acres: Parcel 75 (Lot 4A, 42 First Street), Parcel 53 (Lot 4, 50 First Street), and Parcel 52 (Lot 3, 32 First Street). Parcel 75 (Lot 4A) is currently owned by Osterman Propane, Inc. It was purchased from the Town of Bridgewater on January 24, 1997. Parcel 53 (Lot 4) is town-owned land and was acquired by the Town of Bridgewater March 2, 1985. According to tax records, Osterman Propane currently leases a portion of Parcel 53 for

the storage of machinery. Parcel 52 (Lot 3) is currently leased by Unison Site Management, Frederick, Maryland. Previous owners of this lot include Z&P LLC, Beverly, Massachusetts (1997) and the Bridgewater Industrial Park (1984). Note that while town records identify this parcel as Lot 3, all site-related information refers to the parcel as Lot 3A. This report will therefore refer to the parcel as Lot 3A.

The current physical layout of the Site is depicted on Figure 3-2. The topography of the Site is relatively flat with an upland area in the northeast and north-central portion of the property. The southern and western portions of the Site consist of wetland areas (Wet Area 1 and Wet Area 2) and a drainage canal. The land surface generally slopes to the south and southwest. The Cannons Engineering Corp. operations occurred in the upland area. A grassy drainage swale runs along the southern portion of the upland area. Access to the northeast portion of the Site, along First Street, is unrestricted. Fencing restricts access from the north, south, and west sides of the property; however, a portion of the fence along the southern edge of the Site has partially collapsed.

In the late 1990s, the town sold approximately 2 acres of the Site (Lot 4A) to Osterman Propane, Inc. (Osterman), a privately owned propane storage and distribution dealer. Osterman established operations and regraded and redeveloped Lot 4A for industrial/commercial purposes. A single-story office building with a slab foundation at grade, building utilities, a septic tank and leach field for sanitary wastewater discharge, a paved driveway, two monitoring wells (IMW-1 and IMW-2) downgradient of the septic system/leach field, and a new site fence have been constructed in the northern and northeastern portion of Lot 4A. The west-northwest portion of the upland area is paved and includes a warehouse, two 30,000 gallon above-ground propane tanks on a concrete pad, and small propane gas tanks. Since the last five year review, Osterman has paved a portion of the parking area that was previously gravel.

Lot 4, west and south of the Osterman property, is town land that consists of both wetland and non-wetland areas. Lot 3A borders the southern portion of Lot 4. This lot consists of a pond, wetland areas, portions of a drainage canal, and a telecommunications relay tower. A culvert beneath First Street channels surface water flow westward in the drainage canal.

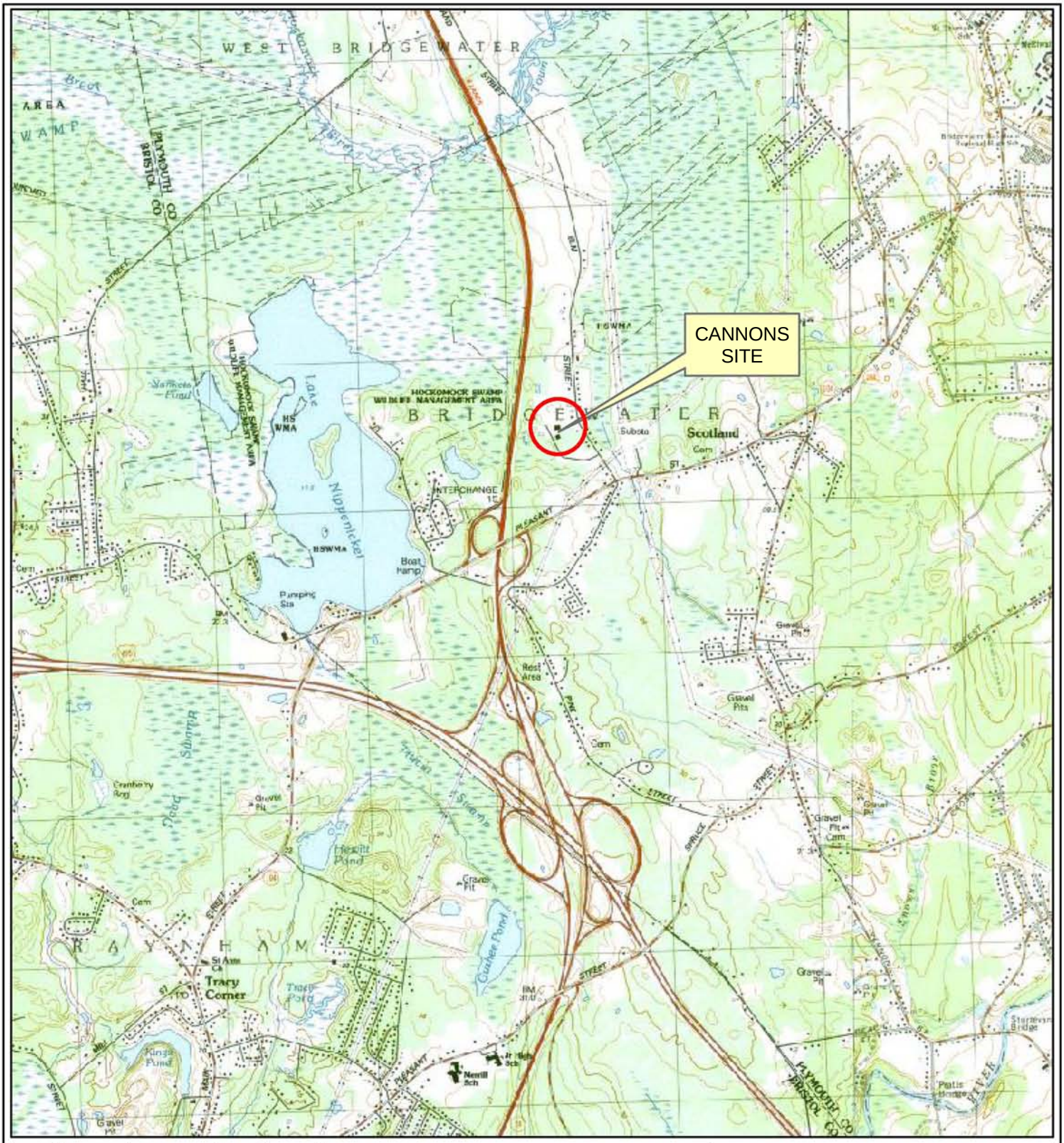

FIGURE 3-1. LOCUS MAP
CANNONS ENGINEERING SITE

Bridgewater, Massachusetts

Source: MassGIS

N
W E
S

1:36,000

0 1,500 3,000 6,000

Feet

AECOM

G:\Projects\HAZWASTE\60150498\Maps\Locus.mxd

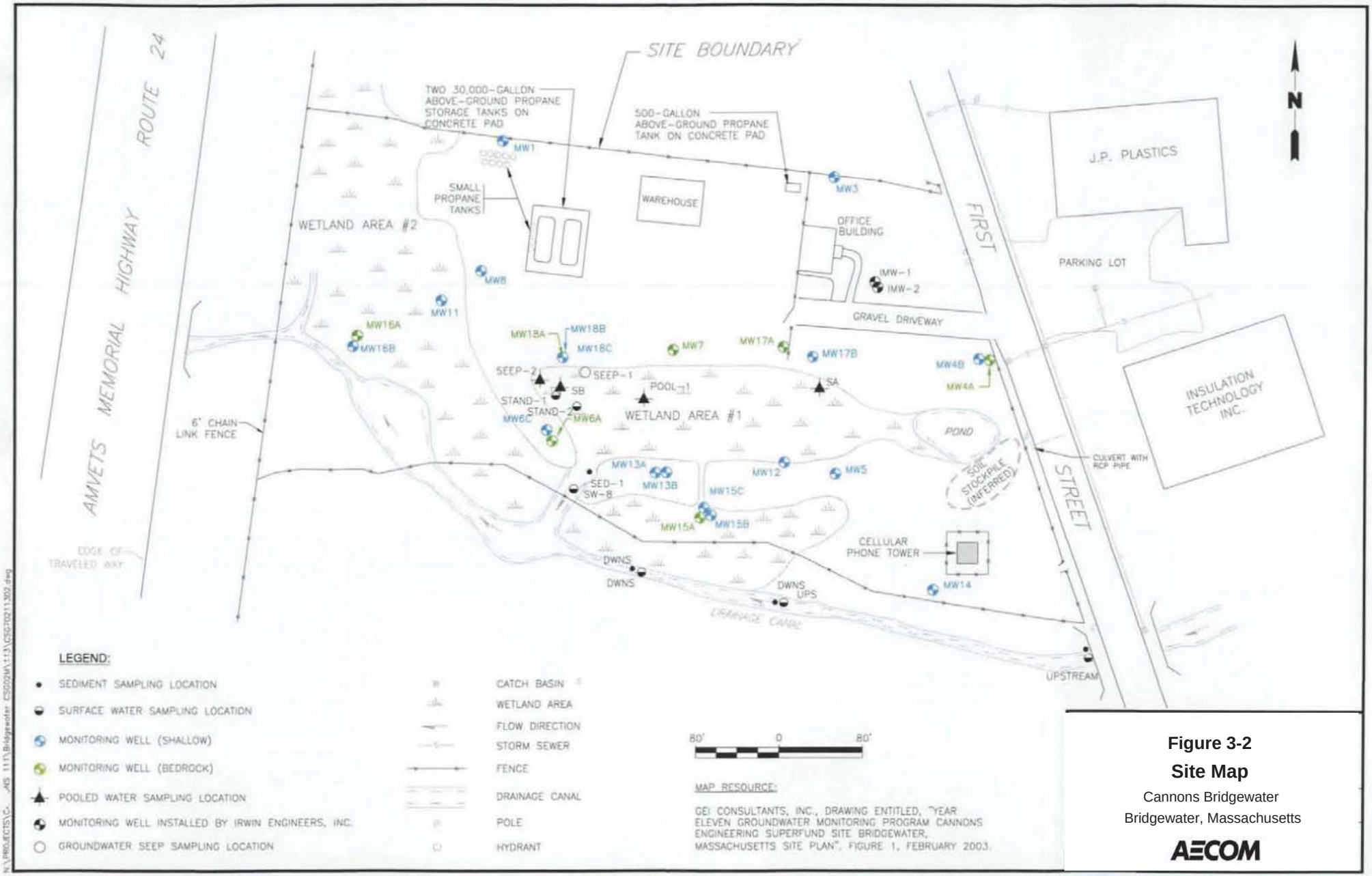

Figure 3-2

Site Map

Cannons Bridgewater

Bridgewater, Massachusetts

AECOM

In 1997, Lot 3A was purchased by Z&P, LLC. In the spring of 1998, Unisite/Omnipoint constructed the telecommunications relay tower on Lot 3A in the southeast portion of the Site. Access to the tower is controlled by a chain-link fence and a locked gate. A gravel driveway leads to the tower which is situated on a concrete slab foundation. A degraded silt fence, hay bales, and seven monitoring wells surround the tower's foundation. Wet Area 1 and wooded lowlands are located immediately northwest and west of the tower, respectively. Two soil berms, bisected by a narrow channel, separate these features.

The Site is located in the southeastern portion of the Town River watershed. Surface water runoff from the Site drains to the south and southwest towards Wet Area 1 and Wet Area 2. Wet Area 1 discharges into the drainage canal via another channel between Wet Area 2 and the wooded lowland (Figure 3-2). The drainage canal flows west and empties into Hockomock Swamp. Hockomock Swamp, a vast wet and wooded wetland area, occupies a large portion of this watershed. Wetlands and floodplains of the Hockomock Swamp are hydrologically connected to an underlying system of regional aquifers. The towns of Bridgewater, West Bridgewater, and Raynham obtain their water supplies from wells in the Town River watershed. The nearest water supply well is located approximately 1.3 miles west of the Site on the southwest shore of Lake Nippenicket (Figure 3-1). Lake Nippenicket is the largest surface water body within 1-mile of the site and is included in the Hockomock Swamp Area of Critical Environmental Concern (ACEC).

The geology and the hydrogeology of the Site have been determined from previous investigations. Based on boring logs in published reports, surficial deposits consist of fill, peat, sand, sandy silt, and clayey silt. These units range in thickness from 1 to 10 feet (EPA, 1988). The fill unit is present at the surface across the upland area and in portions of Wet Area 1. The peat deposit is present at the surface in the wetland areas. The sandy silt deposit was encountered in the upland area as well as Wet Area 1 and reportedly consists of stratified silt, fine sand, and clay (EPA, 1988). A permeable sand and gravel layer underlies the sandy silt unit and is present across the Site. Some cobbles and boulders were encountered while drilling through this unit. The clayey silt unit was found below the permeable sand unit in contact with the bedrock. This unit was generally encountered in the wetland areas. Weathered and fractured sandstone and conglomerate units of the Rhode Island formation were encountered below the surficial deposits (EPA, 1988).

The MOM component of the ROD requires long-term monitoring (20 years) of contaminants in groundwater. Currently, 24 groundwater wells comprise the monitoring well network at upgradient and downgradient locations across the Site. These wells are primarily screened in the unconsolidated sand and sandy silt units and the weathered bedrock. At seven locations, wells are clustered in couplets or triplets to define any vertical hydraulic gradient and allow comparisons between the unconsolidated and consolidated units. The Remedial Investigation (1987) data indicated that groundwater in both the unconsolidated materials and the fractured bedrock flows to the south and southwest. Groundwater elevations measured in September 2009 (Year 19 of the LTMP) were similar to those from previous sampling events and confirm that the groundwater flow direction is primarily to the south/southwest toward the unnamed drainage canal. Similar flow directions have been reported in previous reports.

3.2 Land and Resource Use

The Site is located in the Bridgewater Industrial Park and is bordered to the east by First Street. Two commercial/industrial operations, J.P. Plastics and Insulation Technology, Inc. are located further east across First Street. Wetlands and a drainage canal are south of the Site. Additional wetlands and Route 24 (Amvets Memorial Highway) are west of the Site. North of the Site at 60 First Street is a commercial operation, Graziano Concrete. The area around the Site, and west of Route 24, remains zoned as I-A, i.e. Industrial-A.

The businesses in the Bridgewater Industrial Park are supplied with municipal water for drinking water purposes. There are no public or private drinking water supply wells within the Park. The nearest public municipal water supply well is located approximately 1.3 miles west of the Site on the southwest shore of Lake Nippenicket. Graziano Concrete, the commercial operation which borders the Site to the north (upgradient), uses groundwater from a bedrock supply well for its concrete operation. This well supply, which is not used for drinking water, had been sampled in the past and the results were non-detect for Site related contaminants. According to town officials, the nearest registered private domestic well is located at 444 Elm Street, approximately 1 mile north (upgradient) of the Site.

According to the Massachusetts Geographic Information System (MASSGIS), the Site is located within the boundaries of an ACEC, namely the Hockomock Swamp and its associated wetlands and floodplain areas. The Swamp receives water from the drainage canal that flows south of

the Site. The Hockomock Swamp is the largest vegetated freshwater wetland area in Massachusetts. It covers an area of approximately 17,000 acres across six municipalities. Wetlands and surface water bodies within this ACEC are connected hydrologically to an underlying system of aquifers. However, the Site is not within a Sole Source or Potentially Productive Aquifer Zone. A MassDEP Wellhead Protection Zone (Zone II) is approximately 0.5 miles southwest of the Site. Potentially productive medium and high yield aquifers are located within approximately 0.3 to 0.5 miles east of the Site, respectively.

The Site is not within an area of Protected Open Space. The nearest permanently Protected Open Space areas are in the Hockomock Swamp Wildlife Management Area, approximately 0.25 miles west of the Site; another is located approximately 2000-feet north/northeast of the Site. According to the 2008 Priority and Estimated Habitat map produced by the Natural Heritage & Endangered Species Program, there are no threatened, endangered, or special concern species on the Site. The nearest Priority and Estimated Habitat is located approximately 0.25 miles to the west of the Site. The Program's database for the Town of Bridgewater documents (Data Accessed May 2010) the existence of nine species of special concern, five threatened species, and three endangered species within the town boundary.

According to Federal Emergency Management Agency (FEMA) maps, the upland and redeveloped portions of the Site are not in a Flood Hazard Zone. A Special Flood Hazard Area Zone A is mapped along the east side of Route 24, in the Wet Area 2 portion of the Site. Zone A is described as an area inundated by 100-year floods where no base flood elevation has been determined.

The Site includes several wetland areas and portions of a drainage canal. According to a MASS GIS wetland map for properties on First Street, Bridgewater, Massachusetts, wetlands on site include varieties of swamp marsh meadow or fen and wooded swamp deciduous species. Both the fen and wooded swamp deciduous wetland species have been mapped on portions of Parcel 53 (Lot 4, town land) and Parcel 52 (Lot 3A).

3.3 History of Contamination

In 1974, Cannons Engineering Corporation developed the Site on First Street to transport, store, and incinerate hazardous wastes. On-site structures included 21 storage tanks, 3 buildings, an office/warehouse, and an incinerator. The operation was licensed in 1979 to store used motor oils and emulsions, solvents, lacquers, organic and inorganic chemicals, plating waste, clay and filter media containing chemicals, plating sludge solids, and pesticides (EPA, 2005). The facility had a license to operate from 1974 until 1980, when alleged waste mishandling and reporting violations prompted the Massachusetts Executive Office of Environmental Affairs to revoke their license. The facility was placed in receivership when its owners were found to be guilty of illegal storage and disposal.

Operations ceased at the Site in 1980, leaving behind approximately 700 drums and 155,000 gallons of hazardous liquid waste and sludge in bulk storage (EPA, 2005). Analytical data obtained during investigations in the 1980s identified the presence of chemical contamination at the Site. Prior to removal and remediation activities, the on-site soils, sediments, buildings, groundwater, and surface waters were contaminated to varying degrees with one or more of the following: VOCs; PCBs; PAHs; pesticides; and metals, such as iron, selenium, manganese, lead, and silver (EPA, 2005).

3.4 Initial Response

In 1982, the State removed 155,000 gallons of sludge and liquid wastes and approximately 700 drums and incinerated the materials off site (EPA, 2005). The Site was listed on the NPL in September 1983. The EPA commenced a Remedial Investigation (RI) to assess the extent of contamination present in the air, soils, sediment, surface water, and groundwater. In addition, an Endangerment Assessment and a Wetlands Assessment were prepared to estimate the impacts to human health and the environment, respectively, from exposure to contaminants associated with the Site. The RI and the Assessments were completed in 1987. The information and data obtained during the RI and the Assessments were used to develop a Feasibility Study (FS) which screened several alternatives for remediation. The FS was completed in 1988. Based on the information contained in the RI/FS, the EPA issued a ROD in 1988 requiring remediation of the Site through Source Control to address soil and sediment

contamination, and Management of Migration to monitor contamination in the groundwater at the Site.

3.5 Basis for Taking Action

Prior to remediation activities, the on-site air contained trace amounts of VOCs, including benzene and methylene chloride. Groundwater beneath the Site contained VOCs including toluene, as well as heavy metals. Soil and sediments contained PAHs, PCBs, dioxin, and pesticides in addition to VOCs and heavy metals (EPA, 2005). The organic contaminants were primarily detected in the surface soils, with low concentrations found in subsurface soils. In addition, low levels of PCBs were found in surface soils but were not found in subsurface soils (ELI, 1999). The surface water was contaminated with heavy metals including high levels of iron, selenium, lead, manganese, and silver. Direct contact with and accidental ingestion of contaminated material posed a potential public health threat (EPA, 2005). Inhaling VOCs and contaminated fugitive dust were also potential health threats. Sensitive environmental areas located near the Site include wetland areas to the south and Lake Nippenicket to the west.

4.0 REMEDIAL ACTIONS

This section describes the source control and MOM remedial actions selected for and implemented at the Cannons Engineering Bridgewater Site under the 1988 ROD. The remedial response objectives developed for the Site to mitigate threats to public health and the environment include (EPA, 1988):

- Prevent direct contact with contaminated soils throughout the Site;
- Prevent ingestion of contaminated soils and standing water in the wet area;
- Prevent ingestion of contaminated groundwater;
- Prevent exposure to contaminants in the buildings, aboveground and underground tanks, and associated structures;
- Prevent the exposure of wildlife to contaminated soil, sediments, and standing water in the wet area; and
- Prevent future wetlands contamination from surface water runoff and discharge of contaminated groundwater into the wetlands.
- A comprehensive water quality monitoring program to observe the distribution, migration and lessening of contaminants as the cleanup levels are attained over time via natural attenuation. Natural attenuation was expected to reduce contaminants in the groundwater to cleanup target levels in fifteen to twenty years.

4.1 Source Control

The source control component of the 1988 ROD was completed in 1991 and is briefly summarized below.

4.1.1 Remedy Selection

The source control remedy included: fencing the area to restrict unauthorized access to contaminated soils; treating soil contaminated with VOCs on site by heating it using thermal desorption to remove contaminants; excavating and transporting soils containing PCBs in excess of 9 parts per million (ppm) for off-site incineration; installing a groundwater monitoring system; decontaminating and removing buildings and associated structures; sampling and treating other soils as necessary; and restoration of wetlands disturbed during site cleanup.

Institutional controls were included as part of the remedy to prevent the use of on-site groundwater for all water use purposes and to protect human health. The institutional controls were also included to alert future property owners to potential site-related risks and to restrict certain future land uses, i.e., residential. See Appendix E of this report for a complete copy of the deed restrictions which include a detailed list of the restricted uses for the property.

The institutional controls/deed restrictions currently remain in place and there have been no additional violations of the restrictions. A copy of this report and deed restrictions will be provided to the town official to reiterate the land use restrictions.

As part of the remedial design process, the RP's contractor completed a groundwater contaminant leaching modeling study for the contaminants of concern. The results were compared to the federal MCLs and maximum contaminant level goals (MCLGs). The source control remedial action goals for soils in the source areas were then established to prevent the migration of contaminants of concern beyond the site perimeter at levels above the MCLs and MCLGs (EPA, 2000). On-site thermal aeration (also known as thermal desorption) was then used to treat VOC-contaminated upland area and wet area soils to these protective cleanup levels.

4.1.2 Remedy Implementation

In 1988, the EPA and the PRPs removed and disposed of numerous hazardous materials abandoned at the Site. A fence surrounding the Site was erected in 1989 (EPA, 2005).

In 1990, in accordance with the ROD and the Consent Decree and under EPA and State oversight, cleanup activities were undertaken by the RPs. The building and tanks on the Site were decontaminated and removed and the soils under the structures and in other areas of the Site were characterized. Contaminated soils requiring treatment to remove the threat to human health and the environment were remediated by either thermal desorption or incineration. Four hundred tons of PCB-contaminated soil were incinerated off site; 11,330 tons of soils containing VOCs were treated on site; 1,200 tons of steel and 1,300 tons of concrete were shipped off-site for recycling; 360 cubic yards of hazardous debris were sent to a federally-approved disposal facility; and 480 cubic yards of non-hazardous debris were shipped to a demolition materials landfill (EPA, 1991).

Confirmatory sampling indicated that the ROD soil cleanup objectives (removal of PCBs in soil to below 9 ppm and removal of VOCs and SVOCs in soil below design excavation levels) were achieved and the soil remedy as specified in the ROD was successfully implemented. These results are documented in the Preliminary Closeout Report, (EPA, 1991). Metals were not identified in the ROD as a contaminant of concern in soils.

The upland and on-site wetland areas impacted by the excavation of contaminated soils were restored. The fill materials used during the restoration process were tested and found free of contamination prior to placement on site (EPA, 2000). The site restoration activities were completed by the end of 1990 (EPA, 1991).

The final remedial action activities were completed in 1991. The testing of debris from the demolished on-site thermal treatment unit for dioxin and its subsequent removal was completed in 1991. The thermal aeration process equipment was shipped off site to an EPA-regulated disposal facility. Following the removal of all stored hazardous wastes from the site in July 1991, final grading, seeding, and other minor site activities were completed (EPA, 1991).

4.2 Management of Migration

The MOM component of the 1988 ROD was natural attenuation, which included long-term sampling and monitoring of VOC-contaminated groundwater. The ROD estimated it would require 20 years to achieve the groundwater drinking water standards (e.g. MCLs) via natural attenuation.

4.2.1 Remedy Selection

The MOM portion of the remedy specified in the ROD includes restricting the use of groundwater at the Site by the use of a deed restriction/institutional controls, installing additional monitoring wells, and implementing a long term groundwater quality monitoring program to observe the presence, distribution, and migration of contaminants, if any. The ROD (EPA, 1988) stated that removal and treatment of contaminated soils would eliminate sources of further groundwater contamination and that low levels of residual groundwater contamination were expected to naturally attenuate over a 20-year period to meet drinking water standards

(MCLs). This approach was selected since "groundwater contamination at the site does not pose a significant risk to human health or the environment because analysis of the groundwater conditions indicates that no contaminants migrate past the site boundaries at levels above drinking water standards (MCLs) or any other criteria which are designed to be protective of human health or the environment" (EPA, 1988).

The ROD identified federal MCLs as the cleanup goal, with the following groundwater cleanup targets: benzene – 5 parts per billion (ppb); TCE – 5 ppb; and vinyl chloride – 2 ppb (EPA, 1988). The remedial action objective (RAO) for groundwater stated in the ROD was to ensure that groundwater contaminants at concentrations above the MCLs do not migrate off the site and that the concentrations at wells on the Site decline to the target MCL levels in 15 to 20 years (EPA, 1988). The ROD required that groundwater initially be analyzed for VOCs, SVOCs, PCBs, and metals and noted that specific parameters could be added or deleted depending on the sampling results and observed trends (EPA, 1988).

4.2.2 Remedy Implementation

Following completion of the source control remedial action, 9 new groundwater monitoring wells were installed in late 1990 to supplement 12 wells installed in 1984-1985 during the RI (GEI, 1992). The 21 well LTMP network included 4 background wells, 6 site boundary, or perimeter, wells, and 11 "site" wells. In October 1994, the MW18 triplet was installed south and downgradient of the former operations area in an attempt to intercept a suspected groundwater contaminant plume and to enhance the monitoring well network. This triplet included one bedrock well (MW18A) and two overburden wells (MW18B and MW18C). The wells installed as part of the installation of Osterman's septic system are not part of the monitoring well network. The current LTMP network of 24 wells, including locations and date of installation is summarized in the table below (see also Figure 3-2).

Monitoring Well	Year Installed	Location/Type
MW1	1984	Upgradient/background
MW3	1984	Upgradient/background
MW4A	1984	Cross gradient/background
MW4B	1984	Cross gradient/background
MW5	1984	Site well/south edge of Wet Area 1
MW6A	1984	Site well/between wet areas
MW6C	1990	Site well/between wet areas
MW7	1984	Site well/north of Wet Area 1
MW8	1984	Site well/east of Wet Area 2
MW11	1985	Site well/ Wet Area 2
MW12	1985	Site well/south edge of Wet Area 1
MW13A	1985	Site well/south edge of Wet Area 1
MW13B	1985	Site well/south edge of Wet Area 1
MW14	1990	East – perimeter
MW15A	1990	South – perimeter
MW15B	1990	South – perimeter
MW15C	1990	South – perimeter
MW16A	1990	West – perimeter
MW16B	1990	West- perimeter
MW17A	1990	Site well/north side of Wet Area 1
MW17B	1990	Site well/north side of Wet Area 1
MW18A	1994	Site well/north side of Wet Area 1
MW18B	1994	Site well/north side of Wet Area 1
MW18C	1994	Site well/north side of Wet Area 1

Note: MW2, MW10, and MW6B were abandoned as part of the source control remedy.

The MOM remedy consists of a long-term monitoring program including routine annual groundwater sampling and periodic sediment and surface water sampling. Long-term groundwater monitoring began in 1991 with an expected duration of 15 to 20 years. The monitoring program has been implemented by the RP contractors, GEI Consultants (1991 – 2002) and Roux Associates (2003 – present), under oversight provided by both EPA and MassDEP. The program is performed in accordance with the revised Long-Term Ground Water Monitoring Plan (the Plan) (GEI, 1992).

The Plan included quarterly sampling for two years, followed by a reduction in the frequency to the current annual basis. The quarterly sampling included collection of groundwater samples for VOC analysis during all quarters, and collection of groundwater samples for SVOC analysis during the fall quarterly event. During Year 3 monitoring was conducted on a semi-annual, rather than an annual, frequency. Subsequent to the third year of monitoring, groundwater samples from all 24 wells, as well as seeps and standing water when present, were analyzed

annually for VOCs only. Approximately every 5 years (e.g. Year 4, 9, 14, and 19), a stream sediment sample was collected for PCB analysis. Groundwater samples for SVOC analysis were also collected at approximately five-year intervals from a subset of 7 site wells (MW6A, MW6C, MW17A, MW17B, MW18A, MW18B, and MW18C) and 2 perimeter wells (MW15C, MW16B) (Figure 3-2).

The LTMP does not include analysis of groundwater samples for metals as required in the ROD. EPA determined that metals were a low concern at the Site; when the Plan was developed metals analyses were not required (EPA, 1995). EPA however, did require the collection of one round of groundwater and surface water samples for metals analysis for use in a risk analysis prior to site closure (EPA, 1995). These samples were collected during the Year 19 monitoring event by the RP contractor.

The results indicated that Arsenic exceeded the MCL of 10 µg/l in seven of the 24 wells at the following locations: MW-11 (15 µg/l), MW-12 (32 µg/l), MW-13B (13 µg/l), MW-17B (35 µg/l), MW-18A (23 µg/l), MW-18B (27 µg/l), and MW-18C (40 µg/l). Elevated concentrations of iron and manganese were also detected in these wells, along with several other site wells. The highest concentrations of arsenic were detected in wells that either had historically high VOC concentrations or are in the vicinity of wells with historically high VOCs.

The Plan also includes the collection of samples from groundwater seeps or standing water in the northwest corner of Wet Area 1, if present during the annual monitoring events. Figure 3-2 shows the locations where seep and standing water samples would typically be collected. If seeps or standing water are found during an annual event, the Plan requires that a surface water sample is also collected from location SW-8, at the outlet of Wet Area 1 (GEI, 1992).

4.3 Institutional Controls

Institutional controls, as required by the 1988 ROD, include site security and deed restrictions. Site chain-link fencing was maintained until the Lot 4A property was developed by Osterman in 1996. At that time the fence in front of the Osterman facility was removed. Site fence remains in place from the Osterman driveway south along First Street to the site boundary, west along the site perimeter near the drainage canal, parallel to Route 24, and along the northern site boundary, north of the Osterman facility.

On September 26, 1991, two deed restrictions that run with the land were recorded in the Plymouth County Registry of Deeds for Lot 4 (Book 10498, page 281) and Lot 3A (Book 10498, page 291). The two deed restrictions are included in Appendix E. The restrictions prohibit any groundwater use, prohibit excavation below the depth of the groundwater table without the prior approval of EPA and MassDEP, and limit future use of the property to specific commercial, industrial and for Lot 4, municipal uses.

In the late 1990s, the town sold approximately 2 acres of the Site (Lot 4A) to Osterman Propane, Inc. (Osterman), a privately owned propane storage and distribution dealer. The property transfer was completed under a Prospective Purchaser Agreement (PPA) with EPA. When Lot 4A was developed by Osterman Propane, Osterman agreed to comply with the deed restrictions as part of a PPA. Related to the PPA, in October 1997 a certification was recorded in the Plymouth County Registry of Deeds (Book 15550, page 108) expanding the list of uses by private parties to which Lot 4A is restricted under the 1991 deed restriction and documenting that propane distribution is a permissible use (Appendix E).

As documented in the second five-year review, there was a violation of the deed restrictions during the redevelopment of the Lot 3A parcel. In the spring of 1998, Omnipoint installed a communications tower (monopole) on Lot 3A that, while completed with the proper Bridgewater permits and approvals, did not comply with the deed restrictions. During construction, soil was excavated below the water table. Groundwater in the excavation pit was pumped out and discharged onto the property. Neither the property owner nor the communications company sought prior approval from EPA or the MassDEP to install the tower. The implementation of the institutional controls, in particular the deed restrictions, is discussed further in Section 7.1.

5.0 PROGRESS SINCE THE LAST FIVE-YEAR REVIEW

This is the fourth five year review for the Site. This section presents the recommendations and follow-up actions identified in the third five year review, followed by a summary of efforts since 2005 to address the recommendations.

5.1 PROTECTIVENESS STATEMENT AND RECOMMENDATIONS FROM THIRD FIVE YEAR REVIEW

The following protectiveness statement was included in the third five-year review:

"The groundwater remedy for the Cannons Engineering Bridgewater Site is expected to be protective of human health and the environment upon completion, and in the interim, exposure pathways that could result in unacceptable risks are being controlled through institutional controls.

The source control remedy was documented by EPA as complete in 1991, and judged protective by EPA in the prior two five-year reviews. No new information was encountered during this five-year review to indicate that the protectiveness of this remedy has changed. Therefore, the remedies for source control and groundwater are protective of human health and the environment.

Issues and recommendations from the third five year review included:

Issue #1: Concentrations of two cleanup target VOCs in groundwater from MW18C routinely exceed their MCLs and do not appear to be trending downward. A localized source of VOCs may remain in the vicinity of MW18C.

Recommendation: The presence of a "hot spot" in the vicinity of MW18C should be investigated and further action taken, if necessary, to ensure that MCLs are attained at all wells within the 20-year monitoring period. This investigation should be completed by the RPs, with the involvement of EPA and MASSDEP, prior to the Year 16 annual monitoring event.

Issue #2: Surface water samples have not been collected from location SW-8, as required by the Plan, during years when standing water samples have been collected from Wet Area 1.

Recommendation: Whenever standing water or seep samples are collected, a surface water sample should be collected from SW-8, in accordance with the Plan. This action should be completed by the RP contractor during the annual events in September 2005 through September 2010

Issue #3: The analytical method (OLM04.3) used for the semi-volatile organic compound (SVOC) analysis for groundwater samples has a reporting limit higher than the MCL for four SVOCs.

Recommendation: The Year 19 SVOC analysis should be completed using an EPA method (e.g. 8270 SIM rather than OLM04.3) that will achieve reporting limits low enough to allow for a comparison of the results to the MCLs for individual SVOCs. The RP contractor should identify a suitable method and submit the method to EPA for approval no later than March 2009.

Issue #4: The monitoring wells are not adequately secured with well locks. Two parcels have been redeveloped, and access the Site is no longer restricted by fencing surrounding the entire Site.

Recommendation: The condition of the monitoring wells should be inspected and locks replaced as necessary. As requested by EPA, this task should be completed by the RP contractor as part of the Year 15 annual monitoring event (EPA, 2005). Subsequent to completion of this effort, another site inspection will be performed by EPA in fall 2005 to ensure compliance with this request.

Additional Recommendations:

The RP contractor should include analysis of groundwater and surface water samples for metals in the Year 20 annual event and use the data in a risk analysis to be completed prior to site closure.

A final closeout report for the groundwater monitoring program must be issued when the cleanup target levels (e.g. MCLs) are achieved and the long term monitoring program is completed and a cumulative risk assessment is completed. The final closeout report will be prepared by EPA once all the appropriate data have been received from the RP contractor.

5.2 PROGRESS SINCE LAST (2005) FIVE YEAR REVIEW

Progress made on the recommendations listed above is summarized as follows:

Progress on Issue #1: The RP's chose not to investigate and or take additional further action in the "hot spot" area in the vicinity of MW 18C. However, results last four years of groundwater monitoring, conducted since the last five year review, have shown that concentrations in this well have been consistently below MCL since 2006. Therefore, this issue requires no further action.

Progress on Issue #2: Surface water samples were collected during Year 19 of the Long Term Monitoring Program. (Results are included in Appendix F.) No surface water samples were collected during years 15 through 18 because no standing water or seeps were observed.

Progress on Issue #3: On February 26, 2009, the RP's consultant submitted a work plan to EPA with proposed revisions to the SVOC analytical methods included in the Long Term Monitoring Plan. EPA methods 515.1, 525.2, and 8270C were proposed to achieve reporting limits low enough to allow for a comparison of the SVOC analytical data to the MCLs. EPA approved the work plan in August 2009. Groundwater samples were subsequently collected and analyzed for SVOCs by these methods during the Year 19 sampling event.

Progress on Issue #4: Wells were inspected during the May 14, 2010 site inspection and were found to be locked and in generally good condition

Progress on Additional Recommendations: In response to the recommendation for collection of samples for metals analyses, groundwater samples were collected from the 24 monitoring wells and from one surface water sample and analyzed for metals during the Year 19 monitoring event. The metals sampling was conducted during Year 19 instead of the Year 20 event to obtain a comprehensive "snap shot" in time of conditions at the Site prior to the final round of sampling. Results indicate that arsenic exceeded the MCL in 7 of the 24 monitoring wells.

6.0 FIVE-YEAR REVIEW PROCESS

This section provides a summary of the five-year review process and the actions taken by EPA to complete the review.

6.1 Administrative Components

The Cannons Engineering Corporation Bridgewater five-year review team was led by Derrick Golden of EPA, Remedial Project manager for the site. Jay Naparstek of MassDEP and Richard Sugatt (EPA risk assessor), as well as staff from Metcalf & Eddy/AECOM with expertise in the five year review process, including hydrogeology and risk assessment, were also part of the review team.

The schedule established by EPA included completion of the five-year review by September 2010.

6.2 Community Notification and Involvement

A public notice announcing the five-year review was published in the Patriot Ledger (May 8, 2010).

During implementation of the source control remedy in the early 1990s, there was interest from the public. Since the completion of the source control remedy in 1991, there has been little interest; the municipal and other town residents interviewed for this review indicated a general lack of concern about the Site.

In general, the individuals interviewed at the town offices were either not aware or only vaguely aware of the Site. A reference librarian at the Bridgewater Public Library noted that while site documents are kept in the historic records room of the library, few people request to look at the documents.

Further information obtained from the interviews conducted for this review can be found in Section 6.6 and Appendix C.

6.3 Document Review

This five-year review consisted of a review of relevant documents including decision documents and monitoring reports. A list of documents reviewed is included in Appendix A.

6.4 Data Review

This five-year review included a review of RP contractor plans, monitoring reports, and long-term monitoring data that have been collected during the past 5 years. A summary of the relevant data regarding the long-term groundwater, surface water, and sediment monitoring portion of the site remedy is presented below.

6.4.1 Annual Monitoring Events

Annual groundwater monitoring events continue to be performed in accordance with the RP contractor's Plan. Details concerning the components of the events completed over the past 5 years are summarized in the table below.

Year	Date Performed	Samples Collected	Analysis
Year 15	9/14-9/16, 2005	Groundwater from all 24 monitoring wells	VOCs
Year 16	9/12-9/14, 2006	Groundwater from all 24 monitoring wells	VOCs
Year 17	9/19-9/21, 2007	Groundwater from all 24 monitoring wells	VOCs
Year 18	9/18-9/19, 2008	Groundwater from all 24 monitoring wells	VOCs
Year 19	9/16-9/18, 2009	Groundwater from all 24 monitoring wells; no standing water or seep samples	VOCs Metals
		1 stream sediment sample	PCBs
		Groundwater from 9 monitoring wells	SVOCs
		1 Surface water sample (SW-8)	Metals SVOCs

The remaining annual event anticipated for the 20-year long-term monitoring program will include the following components (GEI, 1996): groundwater from all 24 monitoring wells, groundwater seeps and standing water if present, for analysis for VOCs. To address arsenic concentrations that exceeded the MCL (see Section 6.4.2), an additional round of groundwater sampling, prior to the next Five Year Review (2015), for metals is recommended. If arsenic continues to exceed the MCL, further monitoring may be required.

6.4.2 Annual Monitoring Data

This discussion presents annual monitoring data for groundwater, surface water, and sediment samples obtained since the last five-year review in 2005. The discussion of the PCB sediment data also includes data from 1999 and 2005, since these samples are collected every 5 years to coincide with completion of the five year reviews. Consistent with the Plan, as EPA-approved analytical methods are updated, the updated methods have been used (GEI, 1992). EPA's updated methods typically include either an expanded analyte list and/or improved method reporting limits. Monitoring results are included in Appendix F.

Groundwater

VOCs. Monitoring data collected during the past five years has generally demonstrated a decline in VOC concentrations. During the previous five year review period, monitoring years 10 through 14 (2000 – 2004), the MCLs for several VOCs, including cis-1,2-DCE, PCE, TCE, and vinyl chloride, were consistently exceeded in several wells. During this review period, the only exceedance observed was for vinyl chloride during Year 15 in MW-18C at a concentration of 3.3 µg/l. The MCL for vinyl chloride is 2.0 µg/l.

The historical VOC data are shown graphically in each of the RP contractor's annual reports.

SVOCs. Groundwater samples were collected for SVOC analysis during Year 19 (2009) by EPA Method 515.1, 525.2, and 8270C from the following 9 wells: MW6A, MW6C, MW15C, MW16B, MW17A, MW17B, MW18A, MW18B, and MW18C. These methods were incorporated into the Long Term Monitoring Program in 2009, in response to a recommendation in the last five year review report, via a work plan submitted to, and approved by, EPA to achieve a laboratory reporting limit below the MCLs. There were no detections of SVOCs above MCL. There was one detection of 1,2-dichlorobenzene at an estimated value of 0.53 µg/l, which was below the method reporting limit and well below the MCL (600 µg/l).

Metals. All 24 wells were sampled for metals during Year 19. The MCL for arsenic (10 µg/l) was exceeded in seven of the 24 wells, including MW-11 (15 µg/l), MW-12 (32 µg/l), MW-13B (13 µg/l), MW-17B (35 µg/l), MW-18A (23 µg/l), MW-18B (27 µg/l), and MW-18C (40 µg/l). Elevated concentrations of iron and manganese were also detected in these wells, along with

several other site wells. The highest concentrations of arsenic were detected in wells that either had historically high VOC concentrations or are in the vicinity of wells with historically high VOCs. It is likely that the arsenic exceedances, as well as the elevated iron and manganese concentrations, are indicative of a reducing environment associated with chlorinated organics contamination, and that the arsenic will become adsorbed and/or precipitate as the aquifer gradually returns to a more oxidized state. Other metals detected in low concentrations and below their MCLs, when applicable, include aluminum, barium, cadmium, copper, lead, and zinc.

Surface Water

In 2009 (Year 19), one surface water sample was collected at SW-8 and analyzed for SVOCs, metals. In accordance with the approved monitoring plan, the surface water sample was not analyzed for VOCs because no seeps or standing water were present at the time of sample collection. Detected values are shown in the table below and compared to ecological surface water screening values. Diethyl phthalate was the only SVOC detected in the sample, and there were detected concentrations of arsenic, barium, iron, and manganese. As shown in the table, only iron and manganese exceeded their screening values. The high levels of iron and manganese are suggestive of emerging groundwater that has elevated dissolved iron and manganese due to subsurface reducing conditions. The iron and manganese precipitate out of solution, primarily as hydroxides, as the emerging groundwater is oxygenated in the surface water. These precipitates have little or no chemical toxicity to aquatic organisms, but may physically smother immobile organisms if there are large quantities of precipitate. Iron and manganese concentrations in groundwater are expected to decrease as the aquifer gradually returns to a more oxidized state, resulting in lower concentrations of these metals in surface water. Additional sampling for metals in groundwater and surface water should be conducted to confirm that the anticipated decrease in concentration is occurring. It is recommended that surface water be analyzed for both total and dissolved metals because it is likely that the dissolved concentration will be much lower than the total concentration, thereby enhancing the evaluation whether adverse aquatic impacts are likely.

Analyte	*Year 19 (µg/L)*	*Benchmark (µg/L)*	*Source*
Arsenic	*2*	*150*	*NRWQC*
Barium	*71*	*200*	*GLWQI*
Iron	*13,000*	*1,000*	*NRWQC*
Manganese	*4,000*	*80*	*EcoUpdate*
Diethyl phthalate	*0.53*	*220*	*GLWQI*

NRWQC - National Recommended Water Quality Criteria, chronic
GLWQI – Great Lakes Water Quality Initiative-Secondary Chronic Value
EcoUpdate - USEPA, 1996, ECO Update, Ecotox Thresholds (http://www.epa.gov/oswer/riskassessment/ecoup/pdf/v3no2.pdf

Sediment

During Year 19 (2009) and Year 14 (2004), a sediment sample was collected from the SED-1 location at the outlet of Wet Area 1 and analyzed for PCBs by EPA Method 8080 in Year 9 (1999) and by EPA Method 8082 in Years 14 and 19 (2004 and 2009). The PCB data are shown in the table below.

Analyte	*Year 9 (µg/kg)*	*Year 14 (µg/kg)**	*Year 19 (µg/kg)*
Aroclor 1242	*1000*	*24 U*	*66 U*
Aroclor 1248	*180 U*	*160*	*750*
Aroclor 1260	*-*	*-*	*290*
Aroclor 1016	*180 U*	*24 U*	*66 U*

* Average of duplicate pair
- No data available

Different Aroclors were detected in the Year 19, Year 14 and Year 9 sediment samples. The Year 14 concentrations are significantly less than the results from Year 9, while Year 19 results are similar in concentration to the Year 9 results. The sediment results indicate that the Aroclors have likely weathered over time and thus it is not possible to match the sediment sample fingerprints with a commercial Aroclor standard. The sediment data from the SED-1 location are at or below the NOAA PCB target level of 1 ppm PCBs established during the pre-design study for sediment at the end of the drainage canal (EPA, 1995). The total of all detected Aroclors in Year 19 was 1040 ug/kg, which is equivalent to 1 ppm when rounded to the nearest whole number, therefore the PCBs measured in sediment at the end of the drainage channel are at or below the 1 ppm target level considered to be protective of ecological receptors.

6.5 Site Inspection

A site inspection was conducted on May 14, 2010 by the EPA Task Order Project Officer (TOPO), the MassDEP Site Manager, and the EPA RAC contractor (M&E│AECOM). Representatives from the RP's contractor (Roux Associates) and from Osterman Propane (during inspection of the Osterman property), also participated.

The inspection team focused first on the Osterman Propane property. This property was observed to be very well maintained. A portion of the Site in the vicinity of the two large propane supply tanks was repaved last year, during which portions of the repaved area were graded, disturbing soils as deep as 12" below grade.

The portion of the Site occupied by the American Tower cellular phone tower is surrounded by the perimeter fence that surrounds most of the Site, and a second fence that surrounds the tower itself. Therefore, the inspection team was unable to access this portion of the Site. The outer perimeter of the fence was inspected. It was observed that a portion of the fence along the southern edge of the Site has partially collapsed (see photo 23 in the MSR Technical Memorandum, included in Appendix B). The section of this fence that runs north-to south along First Street (between the cell phone tower property and the Osterman property was observed to terminate at the Osterman property (as depicted by Picture 21). The 24 Site monitoring wells and the two Osterman wells were located during the inspection. All of these wells were found to be locked and in generally good condition.

6.6 Interviews

General discussions and observations were documented during the site inspection performed on May 14, 2010. Telephone interviews were also completed to supplement the site inspection interviews. A list of individuals interviewed regarding this five-year review along with a record of each of the interviews is included in Appendix C.

Mr. Stuart Briggs (manager of Osterman Propane's 42 First Street operation) stated that the team of people who perform the groundwater monitoring and sampling activities on the Osterman property are polite, work in a professional manner, and always contact him prior to sampling events. He was not aware of any problems or issues associated with the Site. He

stated that he feels well informed about Site activities and the progress of the cleanup. When asked by AECOM staff if he was familiar with the deed restrictions associated with the Site, Mr. Briggs stated that he was.

Ian Phillips of Roux Associates, Inc. (the RP Contractor), feels that the project has been very successful: MCLs for the contaminants of concern (VOCs) have been met at all monitoring wells on the Site. He feels that the remedy (Management of Migration), has functioned as expected for sites suitable for monitored natural attenuation (MNA) and has attained the goals specified in the ROD. A decreasing trend of VOC concentrations has been shown in Site monitoring wells, and all VOC concentrations have been below MCLs for the past three years. Mr. Phillips stated that there are no documented impacts from upgradient sites. He was not aware of any evidence of continuing sources of release at the Site, new pumping wells in the vicinity of the Site, or impacts on the aquifer/local water table from offsite pumping or other hydraulic impacts from offsite entities. Mr. Phillips stated that, over the past 20 years of monitoring, the natural gradients have remained relatively constant. Mr. Phillips stated that he was unaware of any violations of the Site's deed restrictions in the last five years. Mr. Phillips stated that the requirements of the ROD have been met and recommends that monitoring activities be terminated at the Site.

Thomas Pratti of the Bridgewater Planning Department indicated that he did not know enough about the Site to form an opinion regarding Site activities. When asked by AECOM staff if he was familiar with the deed restrictions associated with the Site, Mr. Pratti stated that he was not aware of the deed restriction. Jonas Kazlauskas, the Acting Water Department Superintendent, indicated that he was also not familiar with the Site's deed restrictions.

Bridgewater Municipal Administrator Troy Clarkson indicated that he was unfamiliar with the Site and its associated activities. Bridgewater Board of Health agent Doug Sime also expressed a general unfamiliarity with the Site and its associated activities.

AECOM staff contacted Mr. John Sharland, a Bridgewater resident and former member of the Board of Health. Mr. Sharland expressed displeasure with the fact that his tax dollars were being spent to conduct this 5-year review. AECOM explained the requirement for, and purpose of, the five-year reviews in response to Mr. Sharland's objections to the process.

AECOM contacted Scott Sandefur, who is the Director of Environmental Safety & Health for American Tower (the current owner and manager of the cell tower located on-Site). He indicated that he was aware of the Site's deed restrictions. Mr. Sandefur noted that land use, Site occupancy and\or ownership has not changed in the past 5 years to the best of his knowledge. He further stated that he was not aware of any incidents of trespass on the property.

A cover letter to remind people of the deed restriction requirements as well as a copy of this Fourth Five Year Review will be mailed to the above listed Town officials, to address the finding that some town officials are not aware of the deed restrictions.

7.0 TECHNICAL ASSESSMENT

This section provides a technical assessment of the Site remedies in accordance with the technical assessment criteria outlined in the *Comprehensive Five-Year Review Guidance* (EPA, 2001). The technical assessment focuses on the performance of the MOM remedy that is being implemented at the Site. The source control remedy was determined to be complete by EPA in 1991 (EPA, 1991). The five-year review performed in 1995 determined that the remedial action achieved the cleanup levels for PCBs and PAHs and those levels are considered protective (EPA, 1995). The protectiveness of the PCB and PAH soil cleanup levels was re-evaluated in both the second and third five-year reviews; the cleanup levels were found to be within EPA's acceptable risk range. A review of these cleanup levels was completed for this fourth five-year review and is discussed in Section 7.2.

7.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents?

Yes. The review of site-related documents, data, applicable or relevant and appropriate requirements (ARARs), and site inspection notes indicate that the MOM remedy is functioning as intended by the ROD. This judgment has been made based on an evaluation of groundwater monitoring data that has been collected during the last 5 years of the LTMP. This section provides a summary of the information that was evaluated for this five-year review.

Remedial Action Performance and Monitoring Results. As previously discussed, the MOM remedy consists of a long term monitoring program with natural attenuation expected to achieve the MCL-based cleanup levels within 15 to 20 years. Through 2009, 19 years of the expected 20 year program have been completed.

Monitoring data collected since the last five year review in 2005 have shown a consistent decreasing trend in VOC concentrations. Concentrations of SVOCs have also decreased. These trends indicate that the remedy is performing as intended.

Groundwater data for metals, collected during Year 19, showed that the MCL for arsenic was exceeded in seven Site monitoring wells. Arsenic concentrations are expected to decrease as the aquifer gradually returns to a more oxidized state. Additional sampling for metals in

groundwater and surface water (where groundwater emerges) should be conducted to confirm that the anticipated decrease in concentration is occurring.

Costs of Long-Term Monitoring. The ROD included a cost estimate for both capital and operating costs for the MOM remedy. The RP contractor indicated that the monitoring costs have been generally consistent with the ROD estimates.

The annual operating costs estimated in the ROD assumed annual monitoring after 2 years of quarterly monitoring events continuing through Year 10 (2000). After Year 10, the ROD indicated that the frequency would be reduced to an every other year. After Year 10 however, in correspondence to the RP contractor, EPA clarified that annual monitoring should continue, consistent with the approved long term monitoring plan (Golden, 2001). Groundwater monitoring was performed on an annual basis through the last 5-year period. The actual operating costs have been higher than estimated in the ROD since annual monitoring has continued.

Opportunities for Optimization. Several modifications were made in the past to improve, or optimize, the monitoring program. Past efforts have included changing from sampling with bailers to using low-flow sampling protocol, installation of the MW-18 well triplet, and incorporating analytical methods that achieve SVOC detection limits below the MCLs into the LTMP. Since only one year of the planned monitoring program remains, no further optimization recommendations have been identified.

Early Indicators of Potential Remedy Problems. No early indicators of potential remedy problems were identified during the five-year review process.

Implementation of Institutional Controls. The institutional controls established under the ROD for the Site include fencing and deed restrictions on the two parcels, Lot 4 and Lot 3A. The institutional controls and their implementation are described in Section 4.2.

As noted, the fencing remains around the Site, except in front of the Osterman property at 42 First Street, although it was found to have partially collapsed in the southern edge of the Site. During the redevelopment of the Lot 4A parcel and subsequent operations, the Osterman facility

has been in compliance with the site restrictions (EPA, 2000). Since the third five-year review, the facility has continued to be in compliance with the restrictions.

The construction of a communications tower (monopole) on Lot 3A by Omnipoint in 1998 was completed with the proper Town of Bridgewater permits and approvals, but did not comply with the deed restrictions. Soils had been excavated from below the water table and the excavation was dewatered without notice to and approval by EPA or MassDEP. In addition, the lease from the property owner, Z & P LLC, did not reference the deed restrictions. Documentation provided by EPA for the third five year review indicated that, as a result of EPA's notification of the violation of the deed restrictions in 1999, the leases and subleases have been modified, not only by the property owner, but also by the lease holder for the tower (now American Tower) and the subleases to the companies with communications equipment installed on the tower. In addition, the Town of Bridgewater has incorporated the deed restriction and requirement to notify EPA prior to work at the monopole into its site plan approval process.

Nextel notified EPA in August 2004 of plans to install equipment on the tower and noted that the Bridgewater Planning Board conditioned their approval for the work on Nextel's notification to an approval from EPA prior to issuance of a building permit (Nextel, 2004). EPA reviewed the planned activities and confirmed that the construction is allowed under the restrictions. Via a letter dated August 30, 2004, EPA indicated that the construction could proceed consistent with the restrictions (EPA, 2004). An update on the status of the construction was requested, but was not received.

Since the violation of the deed restrictions associated with Lot 3A in 1998, and the procedures put in place since that time, there have been no further problems with compliance. American Tower's lease for the monopole, and the communications equipment subleases, all reference the prohibited activities and required notifications specified in the deed restriction. In addition, the Town of Bridgewater has a system in place that requires notification to EPA of any planned construction activities prior to issuance of a building permit.

7.2 Question B: Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives (RAOs) Used at the Time of the Remedy Selection Still Valid?

Yes, the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives (RAOs) used at the time of the remedy selection are still valid. No changes in exposure pathways or land use have occurred since selection of the remedy. The ROD stated that groundwater at the Site was not being used for drinking water; residences and commercial properties near the Site are served by municipal water supply. While the aquifer underlying the Site was considered a potential future water supply source, the ROD also noted that the yield was likely to be low. These conditions continue to be applicable and there are no changes to exposure pathways. In addition, deed restrictions that restrict the use of groundwater at the Site still remain in place. The restrictions have been incorporated into the leases of the commercial entities that are now located on Lot 4A and Lot 3A.

Exposure pathways associated with the presence of contaminated soil or sediment at the Site are considered eliminated since the source control remedy was successfully completed, as documented in the Preliminary Closeout Report (EPA 1991).

Changes in Land Use. Land use in the vicinity of the Site is industrial in nature, zoned by the Town of Bridgewater as Industrial-A (I-A). The Site is within the Bridgewater Industrial Park. Most of the nearby businesses have been at their current locations since the early 1990s. There have been no changes in land use since the last five year review.

New Contaminants and/or Contaminant Sources. No new contaminants or contaminant sources have been identified since the commencement of the MOM remedy in 1991. Previous five-year reviews have suggested that, based on available groundwater data, a hot spot may have remained at shallow soil depths in the area of MW18. However, based on review of the most recent groundwater monitoring results, this no longer appears to be the case. The contaminants detected in groundwater samples are those identified in the ROD as COCs. The routine VOC analysis performed on an annual basis for groundwater samples from all 24 monitoring wells now includes methyl-tert-butyl ether (MTBE), a common groundwater contaminant because of its use as a gasoline additive. MTBE has not been identified as a site COC. Since the time that the ROD was issued, 1,4-dioxane has been identified as a contaminant that may be present where chlorinated VOC contamination occurs. As 1,4-dioxane

was not a well-known chemical at the time the monitoring plan was established, it is appropriate that prior to Site closeout, one future round of groundwater sampling include this analyte, based on the VOCs historically detected at the site.

No new contaminant or contaminant sources in soils or sediment have been identified since source control remedy was successfully completed in 1991.

Changes in Standards or Newly Promulgated Standards. As part of this five-year review, ARARs for the Site presented in the ROD were reviewed, and a review of current ARARs was conducted. Since the source control remedy has been completed, the location and action-specific ARARs that were cited in the ROD have been met. Only ARARs identified in the 1988 ROD and current ARARs that are applicable to the groundwater remedy are discussed below.

The regulations promulgated under the Resource Conservation and Recovery Act (RCRA) include requirements for groundwater monitoring programs. The groundwater monitoring network and procedures documented in the RP contractor's Plan were designed to meet the RCRA requirements. There are no changes to the RCRA regulations that affect the groundwater monitoring program.

The Safe Drinking Water Act is the legislation that enabled the establishment of MCLs, which are the chemical-specific relevant and appropriate regulations for site groundwater. No new or modified MCLs have been established for site indicator compounds since the last five-year review, so the protectiveness of the remedy is not affected.

The Massachusetts Drinking Water Standards, or MMCLs are identical to the federal MCLs for the VOCs of concern at the Site. State risk-based groundwater standards have been established under the Massachusetts Contingency Plan (MCP) for three different types of exposure. The MCP GW-1 standards, applicable to groundwater in a Zone II aquifer, or current drinking water source area, are identical to the federal MCLs and state MMCLs for the VOC COCs. However, since the Site is not in a Zone II aquifer, the GW-1 standards are not applicable. During completion of the first five year review, MassDEP personnel indicated that GW-2 standards were applicable to the Site (HNUS, 1994). The GW-2 standards are applicable where the groundwater is considered to be a potential source of vapors of oil and/or hazardous material to indoor air (310 CMR 40.0932). The groundwater data reviewed for this five year

review are well below the GW-2 standards, with the only exception being the 2 µg/L standard for vinyl chloride. The groundwater sample from MW-18C exceeded the standard once within the past five years (3.1 µg/L in 2005). However, the vinyl chloride standard was not exceeded over subsequent four years of groundwater monitoring at MW-18C (2006 – 2009).

Executive Order 11990 provides the guidelines for protection of wetlands. OSHA regulations were cited in the ROD, but are no longer considered ARAR by EPA, since they are worker safety rules that must always be complied with.

There are no new or modified requirements that impact the protectiveness of the groundwater remedy.

EPA's guidance document for evaluating vapor intrusion from groundwater to indoor air was reviewed as possible "to be considered" guidance for evaluating the protectiveness of the groundwater remedy. The evaluation approach at the Tier 1 level was used as outlined in the guidance document (EPA, 2002). As discussed in other sections of this report, Lot 4A of the Site has been sold to, and redeveloped by Osterman Propane as a propane distribution facility. This facility is upgradient of the site monitoring well, MW18C, that historically showed MCL exceedances for vinyl chloride and TCE, two of the target cleanup levels specified in the ROD. A review of EPA's guidance (EPA, 2002) at the Tier 1 primary screening level indicated that there is an incomplete vapor intrusion pathway based on the following factors:

1. The EPA guidance is intended to address residential settings, rather than occupational settings where people are in a working situation.
2. The Osterman office building is located approximately 250 ft upgradient of MW18C and was constructed as slab on grade. Thus it is not considered an "inhabited building" or "near" subsurface contaminants, as defined in the guidance.
3. MW7 and 17A, which are located closer to the building than MW18C, have routinely shown either no or low detections of VOCs.
4. There are no other structures either on-site or downgradient from the three wells where groundwater concentrations were historically not consistently below MCLs (e.g., MW8, MW17B, and MW18C). No structures can be built in these areas of the Site in the future since they are delineated wetlands.

Although the incomplete vapor intrusion pathway has been justified above, a brief evaluation was performed as part of this five-year review to determine if further investigations may be justified. The maximum detections from the three most recent groundwater monitoring rounds were used in the Johnson & Ettinger model (USEPA, 2004) using conservative transport parameters to determine potential indoor air concentrations. Specifically, the Johnson & Ettinger basement model was used with standard residential defaults to evaluate the indoor air pathway; the only assumption in the model was a sandy soil type. These concentrations were subsequently compared to the USEPA (2009) Screening Levels for residential air to identify COPCs for this pathway. Two analytes, TCE and vinyl chloride, were then carried through risk calculations for a residential receptor and found to have a cancer risk of 1×10^{-5}, which is within EPA's risk range of 10^{-6} to 10^{-4}, and a non-cancer hazard index (HI) of 0.02, which is below EPA's target HI of 1 (see Appendix D). As exposure parameters for commercial workers are less conservative than residential receptors, vapor intrusion is not a concern at the site.

Changes in Toxicity and Other Contaminant Characteristics. Chemical-specific concentration thresholds used to assess the risk associated with groundwater contaminants present at or in the vicinity of the Site include MCLs. MCLs are not site-specific goals, therefore, changes in toxicity or other contaminant characteristics would not impact the protectiveness of the remedy since the site-specific risk evaluation was not used to develop the concentration thresholds. However, when the cleanup target levels (e.g., MCLs) are achieved and the long term monitoring program is completed, a final closeout report for the groundwater monitoring program must be completed. At that time, a cumulative risk assessment will be performed and used to support the final closeout report.

As noted in previous five-year reviews, during the development of the soil cleanup levels, all PAHs were considered to be equal in toxicity to the most toxic, benzo(a)pyrene. Since the original development of these levels, EPA has approved a relative potency method for evaluating risks to carcinogenic PAHs (cPAHs) whereby each individual cPAH is evaluated using the toxicity value for benzo(a)pyrene in combination with a comparative relative potency factor. Among the other cPAHs, only dibenzo(a,h)anthracene is considered equal in toxicity to benzo(a)pyrene. All other cPAHs are considered less toxic. Since the cleanup levels were developed using the benzo(a)pyrene toxicity factor for all cPAHs without the relative potency factors, the levels are more protective than they would be if they were re-calculated today.

Changes in Risk Assessment Methods. The protectiveness of the soil cleanup levels established for the completed source control remedy (PCBs = 9 ppm; PAHs = 3 ppm) which were reviewed during the second and third five-year reviews was again evaluated. Subsequent to the original development of soil cleanup levels, a new method to evaluate compounds with mutagenic modes of carcinogenic action, such as the carcinogenic PAHs, is now recommended by EPA. The current methodology calls for the use of age-specific adjustment factors to account for an increased sensitivity during early life. This supplemental early-life calculation was not performed previously since the EPA carcinogen risk assessment guidance was published subsequent to the completion of any site-specific risk evaluation. Based on the data available for this five-year review, the early-life calculation would not be expected to change risk conclusions at the site with respect to requiring further remediation. The early-life calculation utilizes age-dependent adjustment factors (ADAFs) which would, at most, increase the risk 10-fold (for a child 0-2 years old) and would generally increase the risk due to cPAHs at the site by a factor of 3 (the ADAF for ages 2 to 16 is 3 and the site child evaluated was ages 8 to 17). This increase results in risks remaining within or below the EPA cancer risk range of 10^{-6} to 10^{-4} (see Appendix D). Conservatively using the ADAF of 3 for cPAHs and other changes in assumptions advocated in revised risk assessment guidance, the soil cleanup goal would be reduced to approximately 0.8 mg/kg. Despite these changes, the cancer and non-cancer risks associated with the two soil cleanup levels remain within the EPA acceptable risk range.

Since the target cleanup levels for groundwater are based on MCLs, rather than site-specific risk-based concentrations, changes in risk assessment methods would not affect the protectiveness of the groundwater remedy.

The ecological risk assessment (ERA) performed for the 1987 Wetlands Assessment and summarized in the Endangerment Assessment Report (1987) was conducted using the best science, methodologies, and professional judgment available at the time. However, the approach would not comply with contemporary guidelines (EPA, 1997). Since the ERA was written in 1986, EPA has published guidelines to address screening out chemicals, selecting contaminants of concern, and performing risk calculations to specifically address ecological exposures, toxicity, and risk. Furthermore, many of the tools available today had not yet been created, such as benchmark screening values, toxicity data, or improved laboratory detection levels. Although the method used to perform the ecological risk assessments differs from current methods and guidance, target clean-up levels and the selected remedy implemented at

the site have achieved sufficient results to be protective of ecological receptors. Based on the limited surface water and sediment data collected as part of the LTMP, contaminants measured in sediment and surface water are at or below target levels considered to be protective of ecological receptors. In surface water, only iron and manganese exceeded their ecological screening values; the high levels of iron and manganese are suggestive of emerging groundwater that has elevated dissolved metals due to subsurface reducing conditions and are expected to decrease as the aquifer returns to a more oxidized state.

Expected Progress Towards Meeting RAOs. As noted in the prior five-year reviews, the remedial response objectives established in the ROD for the source control remedy have been successfully achieved. The surface water and sediment data collected in accordance with the LTMP indicates that there are no issues associated with these media. Comparisons of concentrations of contaminants in sediment and surface water samples indicate that they are at or below target levels considered to be protective of ecological receptors, indicating minimal risk to ecological receptors. The groundwater data collected in accordance with the LTMP indicate that groundwater is not migrating off site at concentrations exceeding MCLs at the six perimeter wells (MW14, MW15A-C, MW16A, B) and that the groundwater consistently meets MCLs for VOCs and SVOCs at the six perimeter, four background (MW1, MW3, MW 4A, B) and all 14 site monitoring wells. Concentrations of arsenic in the groundwater are expected to decline as the aquifer returns to a more oxidized state. The declining concentrations of VOCs seen over 19 years at most Site wells appear to be indicative of natural attenuation, as intended in the ROD. Finally, elevated levels of iron and manganese in surface water are expected to decrease as the aquifer returns to a more oxidized state.

Previous five-year reviews have suggested that, based on available groundwater data, a hot spot may have remained at shallow soil depths in the area of MW18. However, based on review of the most recent groundwater monitoring results, this no longer appears to be the case.

7.3 Question C: Has Any Other Information Come to Light that Could Call into Question the Protectiveness of the Remedy?

1,4-Dioxane was sampled for as part of the year twenty (2010) sampling event. 1,4-Dioxane was not a well-known chemical at the time the original long term monitoring plan was

established, therefore detection of 1,4-Dioxane might call into question the protectiveness of the remedy.

7.4 Technical Assessment Summary

Based on a trend analysis of the groundwater data from the annual monitoring events performed by the RP contractor from the start of the monitoring program through Year 17 (1991 – 2007), and groundwater monitoring data through Year 19, the concentrations of dissolved VOCs in groundwater appear to be naturally attenuating throughout the Site (Roux, 2009). VOC concentrations in groundwater monitoring wells at upgradient and perimeter locations indicate no migration of groundwater from the Site at concentrations exceeding MCLs.

Groundwater sample results for SVOC analysis have shown only one detected analyte, 1,2-dichlorobenzene, which was detected below the method reporting limit for this compound and well below the MCL.

Limited surface water and sediment sample results indicate compliance with applicable standards and established goals except for exceedance of the NRWQC for iron and the freshwater benchmark for manganese; however, these exceedances are not likely to cause chemical toxicity to aquatic organisms. Although site-specific and Aroclor-specific clean-up goals were not established for PCBs relative to ecological risk, the sediment data from the SED-1 location are at or below the NOAA PCB target level of 1 ppm PCBs established during the pre-design study for sediment at the end of the drainage canal (EPA, 1995).

The re-evaluation of the soil cleanup levels for PCBs and PAHs indicated that the calculated risks remain within EPA's acceptable risk range. EPA determined that the ROD requirement for site fencing to control access is no longer needed because of the redevelopment of portions of the Site (EPA, 2000).

The exposure pathways and land use assumptions that were stated in the ROD are still valid. No zoning or land use changes have been made since the ROD. The institutional controls required by the ROD are in place and the deed restrictions have been maintained and appear to be effective in preventing use of the Site's groundwater.

Although the methods used to perform the ecological risk assessment differ from current methods and guidance, the conditions resulting from implementation of target clean-up levels and the selected remedy for the Site appear to be protective. The remedies implemented adequately address the risk to ecological receptors, and monitoring data indicate that the current concentration of contaminants in site media are meeting levels protective of ecological receptors on the site.

In summary, concentrations of VOCs are declining in the majority of the 24 monitoring wells in the groundwater monitoring network. VOC concentrations in groundwater from background and site perimeter monitoring wells are consistently below MCLs. Exceedances of MCLs have no longer been routinely observed at the 14 site monitoring wells during the past 5 years. Previous concerns regarding a potential “hot spot” in the vicinity of MW18C no longer require follow up actions. The arsenic detected at concentrations above MCLs in seven of the Site monitoring wells and the iron and manganese detected in surface water above aquatic screening levels are expected to decrease in concentration as the aquifer returns to a more oxidized state.

8.0 ISSUES

Based on the activities conducted during this five-year review, the issues identified in the following table have been noted.

Table 8-1: Issues

Issues	Affects Current Protectiveness (Y/N)	Affects Future Protectiveness (Y/N)
No sampling has been conducted for 1,4-dioxane, as it was not a well-known chemical at the time the monitoring plan was established.	N	Y*
Groundwater concentrations in 7 of the Site monitoring wells exceeded the MCL for arsenic in the Year 19 data. It is likely that the arsenic exceedances, as well as the elevated iron and manganese concentrations, are indicative of a reducing environment associated with chlorinated organics contamination, and that the arsenic, manganese, and iron will become adsorbed and/or precipitate as the aquifer gradually returns to a more oxidized state.	N	Y*
Several Town officials indicated that they were unfamiliar with the history of the Site and were not aware of the deed restriction requirements.	N	Y*

*Future protectiveness is dependent upon continued adherence to the requirements of the deed restrictions/institutional controls until all contaminant concentrations are below cleanup levels.

9.0 RECOMMENDATIONS AND FOLLOW-UP ACTIONS

In response to the issues noted above, it is recommended that the actions listed in the following table be taken:

Table 9-1: Recommendations and Follow-up Actions

Issue	Recommendations and Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness	
					Current	Future
No sampling has been conducted for 1,4-dioxane, as it was not a well-known chemical at the time the monitoring plan was established.	Collect groundwater and surface water samples for 1,4-dioxane in the Year 20 annual event and use the data in a cumulative risk assessment which needs to be completed prior to Site closure.	RP	State/EPA	October 2010	N	Y*
Groundwater concentrations in 7 of the Site monitoring wells exceeded the MCL for arsenic in the Year 19 data.	An additional round of groundwater sampling, prior to the next Five Year Review (2015), for metals is recommended. If arsenic continues to exceed the MCL, further monitoring may be required	RP	State/EPA	2014	N	Y*
Several Town officials indicated that they were unfamiliar with the history of the Site and were not aware of the deed restriction requirements.	Send the interviewed Town officials a copy of this Five Year Review with a cover letter to reiterate the deed restriction requirements	EPA	State	October 2010	N	Y*

*Future protectiveness is dependent upon continued adherence to the institutional controls.

10.0 PROTECTIVENESS STATEMENTS

The groundwater remedy for the Cannons Engineering Bridgewater Site is expected to be protective of human health and the environment upon completion, and in the interim, exposure pathways that could result in unacceptable risks are being controlled through institutional controls. The institutional controls/deed restrictions currently remain in place and there have been no additional violations of the restrictions. Institutional controls were included as part of the remedy to prevent the use of on-site groundwater for all water use purposes and to protect human health

The source control remedy was documented by EPA as complete in 1991, and judged protective by EPA in the first two five-year reviews. The institutional controls/deed restrictions currently remain in place and there have been no additional violations of the restrictions. The institutional controls were also included to alert future property owners to potential site-related risks and to restrict certain future land uses, i.e., residential. No new information was encountered during this five-year review to indicate that the protectiveness of this remedy has changed. Therefore, the remedies for source control and groundwater are protective of human health and the environment.

11.0 NEXT REVIEW

A fifth five-year review for the Site will be conducted and completed by September 23, 2015.

APPENDIX A

DOCUMENT REVIEW LIST/REFERENCES

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APPENDIX B

MANAGEMENT SYSTEMS REVIEW
TECHNICAL MEMORANDUM

TECHNICAL MEMORANDUM

MANAGEMENT SYSTEM REVIEW AND TECHNICAL COMPLIANCE EVALUATION

CANNONS ENGINEERING BRIDGEWATER SUPERFUND SITE

BRIDGEWATER, MASSACHUSETTS

JULY 2010

As part of the Five-Year Review for the Cannons Engineering Bridgewater Superfund Site (Cannons), a Management System Review (MSR) has been performed which includes performance of a site inspection, review of the remedy, and a technical compliance evaluation in order to evaluate whether each element of the remedy is being maintained and operated in accordance with its intended function. This technical memorandum includes the completed inspection checklist from the site inspection performed on May 14, 2010 and identifies any issues which might affect the protectiveness of the remedy.

Background

The Site is located on First Street, in a small industrial park in Bridgewater, Plymouth County, Massachusetts. The industrial park is located off of Elm Street, in the area west of Elm Street and east of Route 24. The Site is bordered by commercial/industrial operations to the north, wetlands and a drainage canal to the south, First Street to the east, and Route 24 (Amvets Memorial Highway) to the west (see Figure 1). The Site is comprised of three parcels of land: Lots 3A, 4, and 4A. Lot 4 is town land consisting of wetlands and non-wetland areas, Lot 4A comprises the Osterman Property, and Lot 3 consists of a pond, wetlands, and a telecommunications relay phone tower.

Cannons Engineering Corporation operated in Bridgewater from 1974 until 1980. The Site was developed to transport, store, and incinerate hazardous wastes. The facility's license was revoked in 1980 and operations ceased at that time. Prior to removal and remediation activities, the on-site soils, sediments, buildings, groundwater, and surface waters were contaminated to varying degrees with one or more of the following: volatile organic compounds (VOCs); polychlorinated biphenyls (PCBs); polycyclic aromatic hydrocarbons (PAHs); pesticides; and metals, such as iron, selenium, manganese, lead, and silver.

The state completed a removal action in 1982. The Site was placed on the final National Priorities List (NPL) on September 8, 1983. The Record of Decision (ROD) for the Site was signed on March 31, 1988. The ROD selected a source control and a management of migration remedy for the Site. A Consent Decree was entered into between the potentially responsible parties (PRPs) and EPA in 1989.

Site Inspection

On May 14, 2010, Derrick Golden of the US EPA, Jay Naparstek of MassDEP, and Joel Meunier of M&E│AECOM performed an inspection of the Cannons site. Also present for part of the inspection was Stuart Briggs of Osterman Propane. The site inspection checklist and

photos are included as Attachments 1 and 2, respectively. All observed monitoring wells were locked and appeared to be in generally good condition. Fencing does not completely surround the site and some was noted as partially collapsed (southern edge of site, through wetlands; see photos).

Management System Review and Technical Compliance Evaluation of Remedy Components

The primary components of the 1988 Record of Decision (ROD) remedy included source control (soil and sediment), management of migration (groundwater), and institutional controls. Each of these components is briefly summarized below and evaluated with respect to its intended function. Most of the background information has been incorporated from the previous Five-Year Review (EPA, 2005a).

Source Control: The source control component of the 1988 ROD was completed in 1991 and included: fencing the area to restrict unauthorized access to contaminated soils; treating certain contaminated soil on site by heating it using thermal aeration (also known as thermal desorption) to remove contaminants; excavating and transporting soils containing PCBs in excess of 9 parts per million (ppm) for off-site incineration; installing a groundwater monitoring system; decontaminating and removing buildings and associated structures; sampling and treating other soils as necessary; and restoration of wetlands disturbed during site cleanup.

In 1988, the EPA and the PRPs removed and disposed of numerous hazardous materials abandoned at the site. A fence surrounding the site was erected in 1989 (EPA, 2005b).

In 1990, in accordance with the ROD and the Consent Decree and under EPA and State oversight, cleanup activities were undertaken by the PRPs. The building and tanks on the site were decontaminated and removed and the soils under the structures and in other areas of the site were characterized. Contaminated soils requiring treatment to remove the threat to human health and the environment were remediated by either thermal desorption or incineration. Four hundred tons of PCB-contaminated soil were incinerated off site; 11,330 tons of soils containing VOCs were treated and backfilled on site; 1,200 tons of steel and 1,300 tons of concrete were shipped off-site for recycling; 360 cubic yards of hazardous debris were sent to a federally-approved disposal facility; and 480 cubic yards of non-hazardous debris were shipped to a demolition materials landfill (EPA, 1991).

Confirmatory sampling indicated that the ROD soil cleanup objectives (removal of PCBs in soil to below 9 ppm and removal of VOCs and SVOCs in soil to below design cleanup levels) were achieved and the soil remedy as specified in the ROD was successfully implemented (EPA, 1991). Metals were not identified in the ROD as a contaminant of concern in soils.

The upland and on-site wetland areas impacted by the excavation of contaminated soils were restored. The fill materials used during the restoration process were tested and found free of contamination prior to placement on site (EPA, 2000). The site restoration activities were completed by the end of 1990 (EPA, 1991).

The final remedial action activities were completed in 1991. The testing of debris from the demolished on-site thermal treatment unit for dioxin (due to the potential for its formation during

the thermal treatment process) and its subsequent removal was completed in 1991. The thermal aeration process equipment was shipped off site to an EPA-regulated disposal facility. Following the removal of all stored hazardous wastes from the site in July 1991, final grading, seeding, and other minor site activities were completed. Completion of the remedial action activities was documented in the Interim Closeout Report for the Cannons Engineering Corporation Site, Bridgewater (EPA, 1991).

Evaluation of Intended Function:

- No new contaminants or contaminant sources in soils or sediment have been identified since the source control remedy was successfully completed in 1991.

- The exposure pathways and land use assumptions that were stated in the ROD are still valid. No zoning or land use changes have been made since the ROD.

- Subsequent to the original development of soil cleanup levels for PCBs and PAHs, a new method to evaluate compounds with mutagenic modes of action, such as the carcinogenic PAHs, is now recommended by EPA. Based on the data available for this five-year review, the new method would not be expected to change risk conclusions at the site with respect to requiring further remediation. Furthermore, despite this new method and other changes in assumptions advocated in revised risk assessment guidance, the cancer and non-cancer risks associated with the soil cleanup levels remain within the EPA acceptable risk range.

- EPA's dioxin reassessment has been developed and undergone review over many years with the participation of scientific experts in EPA and other federal agencies, as well as scientific experts in the private sector and academia. The Agency followed current cancer guidelines and incorporated the latest data and physiological/biochemical research into the assessment. The results of the assessment have currently not been finalized and have not been adopted into state or federal standards. EPA anticipates that a final revision to the dioxin toxicity numbers may be released by the end of 2010. In addition, EPA/OSWER has proposed to revise the interim preliminary remediation goals (PRGs) for dioxin and dioxin-like compounds, based on technical assessment of scientific and environmental data. However, EPA has not made any final decisions on interim PRGs at this time. Therefore, the dioxin toxicity reassessment for this site will be updated during the next Five-Year Review or during evaluations for site closeout.

- EPA determined that the ROD requirement for site fencing to control access is no longer needed because of the redevelopment of portions of the site (EPA, 2000).

- Limited surface water and sediment sample results indicate compliance with applicable standards and established goals. Although site-specific and Aroclor-specific clean-up goals were not established for PCBs relative to ecological risk, the sediment data from the SED-1 location are at or below the NOAA PCB target level of 1 ppm PCBs established during the pre-design study for sediment at the end of the drainage canal (EPA, 1995).

- Although the methods used to perform the ecological risk assessment differ from current methods and guidance, the conditions resulting from implementation of target clean up levels and the selected remedy for the site appear to be protective. The remedies

implemented adequately address the risk to ecological receptors, and monitoring data indicate that the current concentration of contaminants in site media are meeting levels protective of ecological receptors on the site.

Management of Migration (MOM): The MOM component of the 1988 ROD included long-term monitoring of VOC-contaminated groundwater. The ROD estimated it would require 20 years to achieve the groundwater drinking water standards (e.g., MCLs) via monitored natural attenuation.

The MOM portion of the remedy specified in the ROD includes restricting the use of groundwater at the site by the use of a deed restriction/institutional controls, installing additional monitoring wells, and implementing a long term groundwater quality monitoring program to observe the presence, distribution, and migration of contaminants, if any. The ROD (EPA, 1988) stated that removal and treatment of contaminated soils would eliminate sources of further groundwater contamination and that low levels of residual groundwater contamination would naturally attenuate over a 20-year period to meet drinking water standards. This approach was selected since "groundwater contamination at the site does not pose a significant risk to human health or the environment because analysis of the groundwater conditions indicates that no contaminants migrate past the site boundaries at levels above drinking water standards (MCLs) or any other criteria which are designed to be protective of human health or the environment" (EPA, 1988).

The remedial action objective (RAO) for groundwater stated in the ROD was to ensure that groundwater contaminants at concentrations above the MCLs do not migrate off the site and that the concentrations at wells on the site decline to the target MCL levels in 15 to 20 years (EPA, 1988).

The MOM remedy consists of a long-term monitoring program including routine annual groundwater sampling and periodic sediment and surface water sampling. Long-term groundwater monitoring began in 1991 with an expected duration of 15 to 20 years. The monitoring program included quarterly sampling for two years, followed by a reduction in the frequency to the current annual basis. Approximately every 5 years, a stream sediment sample is collected for PCB analysis.

The monitoring program also includes the collection of samples from groundwater seeps or standing water in the northwest corner of Wet Area 1, if present during the annual monitoring events. If seeps or standing water are found during an annual event, the monitoring program requires that a surface water sample is also collected from location SW-8, at the outlet of Wet Area 1 (GEI, 1992).

Evaluation of Intended Function:

- No changes in exposure pathways or land use have occurred since selection of the remedy. The ROD stated that groundwater at the site was not being used for drinking water; residences and commercial properties near the site are served by municipal water

supply. While the aquifer underlying the site was considered a potential future water supply source, the ROD also noted that the yield was likely to be low. These conditions continue to be applicable and there are no changes to exposure pathways.

- Previous five-year reviews have suggested that, based on available groundwater data, a hot spot may have remained at shallow soil depths in the area of MW18. However, based on review of the most recent groundwater monitoring results, this no longer appears to be the case.

- The groundwater data collected in accordance with the long-term monitoring program indicates that groundwater is not migrating off site at concentrations exceeding MCLs at the 6 perimeter wells and that the groundwater consistently meets MCLs at the 6 perimeter, 4 background, and all 14 site monitoring wells. The declining concentrations of VOCs seen over 19 years at most site wells appear indicative of natural attenuation, as intended in the ROD.

- Chemical-specific concentration thresholds used to assess the risk associated with groundwater contaminants present at or in the vicinity of the site include MCLs. MCLs are not site-specific goals. Therefore, changes in toxicity or other contaminant characteristics would not impact the protectiveness of the remedy since the concentration threshold was not developed via site-specific risk-based methods.

- No new or modified MCLs have been established for site indicator compounds since the last five-year review, so the protectiveness of the remedy is not affected.

- The vapor intrusion pathway has been established as incomplete at the site. However, a brief evaluation was performed to determine if further investigations may be justified. Risk calculations for a residential receptor were found to be within or below EPA target risk criteria. As exposure parameters for commercial workers are less conservative than residential receptors, vapor intrusion is not a concern at the site.

- As 1,4-dioxane was not a well-known chemical at the time the monitoring plan was established, it is appropriate that one future round of groundwater sampling includes this analyte, based on the VOCs historically detected at the site.

- The MCL for arsenic was exceeded at 7 of the Site monitoring wells. Elevated concentrations of iron and manganese were also detected. It is likely that the arsenic exceedances, as well as the elevated iron and manganese concentrations, are indicative of a reducing environment associated with chlorinated organics contamination, and that the arsenic will become adsorbed and/or precipitate as the aquifer gradually returns to a more oxidized state.

Institutional Controls: Institutional controls, as required by the 1988 ROD, include site security and deed restrictions. Site chain-link fencing was maintained until the Lot 4A property was developed by Osterman in 1996. At that time the fence in front of the Osterman facility was removed. Site fence remains in place from the Osterman driveway south along First Street to the site boundary, west along the site perimeter near the drainage canal, parallel to Route 24, and along the northern site boundary, north of the Osterman facility.

On September 26, 1991, two deed restrictions that run with the land were recorded in the Plymouth County Registry of Deeds for Lot 4 and Lot 3A. The restrictions prohibit any groundwater use, prohibit excavation below the depth of the groundwater table without the prior approval of EPA and MassDEP, and limit future use of the property to specific commercial, industrial and for Lot 4, municipal uses.

In the late 1990s, the town sold approximately 2 acres of the site (Lot 4A) to Osterman Propane, Inc. (Osterman), a privately owned propane storage and distribution dealer. The property transfer was completed under a Prospective Purchaser Agreement (PPA) with EPA. When Lot 4A was developed by Osterman Propane, Osterman agreed to comply with the deed restrictions as part of a PPA. Related to the PPA, in October 1997 a certification was recorded in the Plymouth County Registry of Deeds expanding the list of uses by private parties to which Lot 4A is restricted under the 1991 deed restriction and documenting that propane distribution is a permissible use.

As documented in the second five-year review, there was a violation of the deed restrictions during the redevelopment of the Lot 3A parcel. In the spring of 1998, Omnipoint installed a communications tower (monopole) on Lot 3A that, while completed with the proper Bridgewater permits and approvals, did not comply with the deed restrictions. During construction, soil was excavated below the water table. Groundwater in the excavation pit was pumped out and discharged onto the property. Neither the property owner nor the communications company sought prior approval from EPA or the MassDEP to install the tower. In addition, the lease from the property owner, Z & P LLC, did not reference the deed restrictions. As a result of EPA's notification of the violation of the deed restrictions in 1999, the leases and subleases have been modified, not only by the property owner, but also by the lease holder for the tower (now American Tower) and the subleases to the companies with communications equipment installed on the tower. In addition, the Town of Bridgewater has incorporated the deed restriction and requirement to notify EPA prior to work at the monopole into its site plan approval process.

Evaluation of Intended Function:

- As noted, the fencing remains around the site, except where a portion has partially collapsed along the southern edge of the Site. Repairs to the fence were determined to be unnecessary since Osterman has redeveloped lot 4A and portions of the fence were either removed or relocated, as noted in the third five year review. During the redevelopment of the Lot 4A parcel and subsequent operations, the Osterman facility has been in compliance with the site restrictions (EPA, 2000). Since the second five-year review, the facility has continued to be in compliance with the restrictions.

- Since the violation of the deed restrictions associated with Lot 3A in 1998, and the procedures put in place since that time, there have been no further problems with compliance. American Tower's lease for the monopole, and the communications equipment subleases, all reference the prohibited activities and required notifications specified in the deed restriction. In addition, the Town of Bridgewater has a system in place that requires notification to EPA of any planned construction activities prior to issuance of a building permit.

- The institutional controls required by the ROD are in place and the deed restrictions have been maintained and appear to be effective in preventing use of the site's groundwater.

Summary of Technical Compliance Evaluation

The groundwater remedy for the Cannons Engineering Bridgewater Site is expected to be protective of human health and the environment upon completion, and in the interim, exposure pathways that could result in unacceptable risks are being controlled through institutional controls.

The source control remedy was documented by EPA as complete in 1991, and judged protective by EPA in prior five-year reviews. No new information was encountered during the past five years to indicate that the protectiveness of this remedy has changed. Therefore, the remedies for source control and groundwater are protective of human health and the environment.

Recommendations/Issues

The RP contractor should include analysis of groundwater for 1,4-dioxane in the Year 20 annual event and use the data in a risk analysis to be completed prior to site closure, and use the data in a cumulative risk analysis, to be completed prior to deletion of the Site from the NPL.

To address arsenic concentrations that exceed the MCL, an additional round of groundwater sampling for metals, prior to the next Five Year Review (2015), is recommended.

A final closeout report for the groundwater monitoring program must be issued when the cleanup target levels (e.g., MCLs) are achieved and the long term monitoring program is completed. The final closeout report will be prepared by EPA once all the appropriate data have been received from the RP contractor.

As the results of EPA/OSWER's dioxin toxicity reassessment have currently not been finalized and have not been adopted into state or federal standards, the dioxin toxicity reassessment for this site will be updated during the next Five-Year Review or during evaluations for site closeout.

References

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EPA, 1991. *Superfund Site Interim Close Out Report. Cannons Engineering Corporation (CEC) Site, Bridgewater, Massachusetts*. U.S. Environmental Protection Agency. September 30, 1991.

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EPA, 2000. *Five-Year Review, Cannons Engineering Corporation Superfund Site, Bridgewater, Massachusetts*. Office of Site Remediation and Restoration, U.S. Environmental Protection Agency. September 2000.

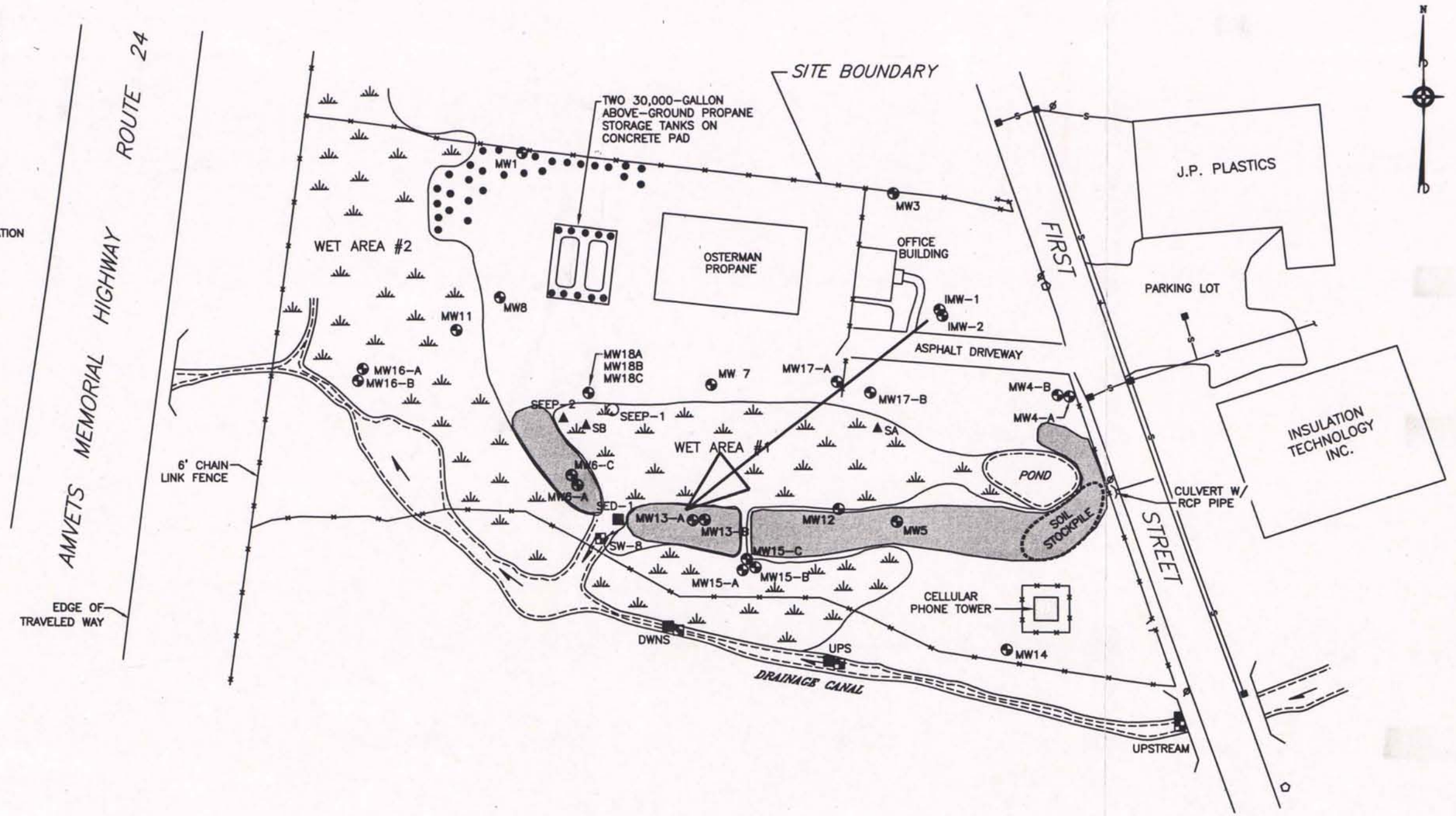
EPA, 2005a. *Third Five-Year Review Report for Cannons Engineering Bridgewater Superfund Site, Town of Bridgewater, Plymouth County, Massachusetts*. U.S. Environmental Protection Agency, Region 1, New England. September 2005.

EPA, 2005b. Cannon Engineering Corporation (CEC), Bridgewater, Massachusetts. Waste Site Cleanup & Reuse in New England. EPA web site: **http://yosemite.epa.gov/r1/npl_pad.nsf/f52fa5c31fa8f5c885256adc0050b631/6760E6CA572C82908525690D00449680?OpenDocument**

GEI, 1992. *Long-Term Ground Water Monitoring Plan*, Cannons Bridgewater Superfund Site, Bridgewater, Massachusetts. GEI Consultants, Inc. June 1992.

LEGEND:

- SOIL SAMPLING LOCATION
- SURFACE WATER SAMPLING LOCATION
- WET AREA
- STORM SEWER
- FENCE
- FLOW DIRECTION
- CATCH BASIN
- POLE
- FIRE HYDRANT
- MONITORING WELL
- POOLED WATER SAMPLING LOCATION
- GROUNDWATER SEEP SAMPLING LOCATION
- PROPANE TANKS
- SOIL BERM
- INFERRED SHALLOW GROUNDWATER FLOW DIRECTION



NOTES:

1. PLAN TAKEN FROM A PLAN BY RAYTHEON ENGINEERS & CONSTRUCTORS, DATED: 8/00, ENTITLED: "FIGURE 5-2 SITE PLAN", DRAWN BY: DVW, PROJECT #: CANNONS.
2. LOCATIONS OF EXISTING STRUCTURES ARE APPROXIMATE.
3. LOCATIONS OF IMW-1 AND IMW-2 ARE APPROXIMATE AND BASED ON SITE PLAN PROVIDED BY IRWIN ENGINEERS, INC. DATED DECEMBER 31, 1998.

GRAPHIC SCALE

0' 100' 200'

SITE PLAN			
CANNONS ENGINEERING SITE – FIVE YEAR REVIEW			
BRIDGEWATER, MASSACHUSETTS			
DRAWN BY:	D.W.M. / R.G.D.	REV.:	0
CHECKED BY:	P. CALL	DATE:	SEPTEMBER 9, 2005
SCALE:	AS NOTED	FILE NO.:	I: \00098\0600\SITE_PLAN.DWG

FIGURE 1

TETRA TECH NUS, INC.
55 Jonspin Road Wilmington, MA 01887
(978)658-7899

Attachment 1

Site Inspection Checklist

Site Inspection Checklist

I. SITE INFORMATION	
Site name: Cannons Engineering Corporation, Bridgewater (Bridgewater MA)	**Date of inspection:** 5/14/10
Location and Region: First Street, Bridgewater, MA; USEPA Region 1	**EPA ID:** MAD079510780
Agency, office, or company leading the five-year review: USEPA Region 1	**Weather/temperature:** Overcast, 50° F

Remedy Includes: (Check all that apply)

- ○ Landfill cover/containment
- ● Access controls
- ● Institutional controls
- ○ Groundwater pump and treatment
- ○ Surface water collection and treatment
- ○ Other_____
- ● Monitored natural attenuation
- ○ Groundwater containment
- ○ Vertical barrier walls

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**
   - ○ O&M manual — ○ Readily available — ○ Up to date — ● N/A
   - ○ As-built drawings — ○ Readily available — ○ Up to date — ● N/A
   - ○ Maintenance logs — ○ Readily available — ○ Up to date — ● N/A

   Remarks__Annual monitoring reports required by ROD and consent decree_____

2. **Site-Specific Health and Safety Plan** — ○ Readily available — ○ Up to date — ● N/A
   - ○ Contingency plan/emergency response plan — ○ Readily available — ○ Up to date — ● N/A

   Remarks_____

3. **O&M and OSHA Training Records** — ○ Readily available — ○ Up to date — ● N/A

   Remarks_____

4. **Permits and Service Agreements**
   - ○ Air discharge permit — ○ Readily available — ○ Up to date — ● N/A
   - ○ Effluent discharge — ○ Readily available — ○ Up to date — ● N/A
   - ○ Waste disposal, POTW — ○ Readily available — ○ Up to date — ● N/A
   - ○ Other permits_____ — ○ Readily available — ○ Up to date — ● N/A

   Remarks_____

5. **Gas Generation Records** — ○ Readily available — ○ Up to date — ● N/A

   Remarks_____

6. **Settlement Monument Records** — ○ Readily available — ○ Up to date — ● N/A

   Remarks_____

7.	**Groundwater Monitoring Records** ● Readily available ○ Up to date ○ N/A Remarks___Annual monitoring reports_____	
8.	**Leachate Extraction Records** ○ Readily available ○ Up to date ● N/A Remarks_____	
9.	**Discharge Compliance Records** ○ Air ○ Readily available ○ Up to date ● N/A ○ Water (effluent) ○ Readily available ○ Up to date ● N/A Remarks_____	
10.	**Daily Access/Security Logs** ○ Readily available ○ Up to date ● N/A Remarks_____	
	IV. O&M COSTS ○ Applicable ● N/A	
1.	**O&M Organization** ○ State in-house ○ Contractor for State ○ PRP in-house ● Contractor for PRP ○ Federal Facility in-house ○ Contractor for Federal Facility ○ N/A Other_____	
2.	**O&M Cost Records** ○ Readily available ○ Up to date ● N/A ○ Funding mechanism/agreement in place Not reviewed at time of inspection.	
3.	**Unanticipated or Unusually High O&M Costs During Review Period** Describe costs and reasons: N/A	
	V. ACCESS AND INSTITUTIONAL CONTROLS ● Applicable ○ N/A	
A. Fencing		
1.	**Fencing damaged** ○ Location shown on site map ○ Gates secured ○ N/A Remarks: Fencing located due South of MW-15A and MW-15B has partially collapsed. See photos	
B. Other Access Restrictions		
1.	**Signs and other security measures** ○ Location shown on site map X N/A Remarks_____	

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ○ Yes ● No ○ N/A
Site conditions imply ICs not being fully enforced ○ Yes ● No ○ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date ○ Yes ○ No ○ N/A
Reports are verified by the lead agency ○ Yes ○ No ○ N/A

Specific requirements in deed or decision documents have been met X Yes ○ No ○ N/A
Violations have been reported ○ Yes ○ No X N/A
Other problems or suggestions: ○ Report attached

Parking lot around the two large propane supply tanks located to the rear of the Osterman propane property was repaved last year. Shallow grading to 12" BSG was performed before repaving. No other subsurface work was performed.

2. **Adequacy** ● ICs are adequate ○ ICs are inadequate ○ N/A
Remarks: Refer to 5-Year Review text for discussion.

D. General

1. **Vandalism/trespassing** ○ Location shown on site map ● No vandalism evident
Remarks: During hunting season, bow hunters occasionally trespass at the rear (western) portion of the Osterman property.

2. **Land use changes on site** ○ N/A
Remarks: None

3. **Land use changes off site** ○ N/A
Remarks: None

VI. GENERAL SITE CONDITIONS

A. Roads ○ Applicable ● N/A

1. **Roads damaged** ○ Location shown on site map ○ Roads adequate ○ N/A
Remarks: First Street is in need of repair. The parking lot of Osterman property is in good shape.

B. Other Site Conditions

Remarks: Osterman propane property is well maintained. Osterman propane plans to repave a small area next to their office building.

VII. LANDFILL COVERS ○ Applicable ● N/A

VIII. VERTICAL BARRIER WALLS ○ Applicable ● N/A

IX. GROUNDWATER/SURFACE WATER REMEDIES ● Applicable G N/A
A. Groundwater Extraction Wells, Pumps, and Pipelines ○ Applicable ● N/A
B. Surface Water Collection Structures, Pumps, and Pipelines ○ Applicable ● N/A
C. Treatment System ○ Applicable ● N/A
D. Monitoring Data/Wells ● Applicable ○ N/A
1. Monitoring Data ● Is routinely submitted on time ● Is of acceptable quality
2. Monitoring data suggests: ● Groundwater plume is effectively contained ● Contaminant concentrations are declining
3. Monitoring Wells ● Properly secured/locked X Functioning ● Routinely sampled ● Good condition ● All required wells located ○ Needs Maintenance ○ N/A Remarks: Photos taken of monitoring wells

D. Monitored Natural Attenuation
1. **Monitoring Wells** (natural attenuation remedy) ● Properly secured/locked ● Functioning ● Routinely sampled ● Good condition ○ All required wells located ○ Needs Maintenance ○ N/A Remarks_____ _____
X. OTHER REMEDIES
If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.
XI. OVERALL OBSERVATIONS
A. Implementation of the Remedy
Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.). N/A – Refer to 5-Year Review for further discussion.
B. Adequacy of O&M
Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. N/A – Refer to 5-Year Review for further discussion.

C.	Early Indicators of Potential Remedy Problems
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromised in the future. N/A – Refer to 5-Year Review for further discussion.
D.	**Opportunities for Optimization**
	Decrease frequency of groundwater monitoring events.

Attachment 2

Picture 1: Osterman Propane; view towards the west from the property entrance.

Picture 2: Osterman Propane office building; view towards the north.

Picture 3: Monitoring well MW-7; view towards the northwest.

Picture 4: Osterman Propane; view towards the east, towards the property entrance.

Picture 5: Monitoring well MW17-A; view towards the northwest.

Picture 6: Monitoring well MW17-B; view towards the southwest.

Picture 7: Monitoring wells MW18A, MW18B, and MW18C; view towards the northwest. Note bailer lying next to the well on the left.

Picture 8: MW8; view towards the northeast.

Picture 9: Monitoring well MW16-A.

Picture 10: The southwest corner of the Osterman Propane property; view towards the north.

Picture 11: Two large propane tanks located on the Osterman Propane property; view towards the southeast.

Picture 12: Monitoring MW1; view towards the north.

Picture 13: The northwest corner of the Osterman Propane property; view towards the east.

Picture 14: View of the eastern edge of the Osterman Propane property; view towards the southwest.

Picture 15: Monitoring well IMW-2; view towards the north.

Picture 16: Monitoring well IMW-1; view towards the west.

Picture 17: Monitoring well MW4-A; view towards the south.

Picture 18: Monitoring well MW4-B; view towards the south.

Picture 19: Monitoring well MW3; view towards the northeast.

Picture 20: Osterman Propane office building; view towards the south.

Picture 21: End of\break in the section of the Site perimeter fence that runs north-to south along First Street (between the cell phone tower property and the Osterman Propane property); located at the southeast corner of the entrance to the Osterman property.

Picture 22: American Tower cellular phone tower; view from First Avenue towards the northwest.

Picture 23: Partially collapsed portion of a section of the Site perimeter fence along the southern edge of the Site; view towards the west.

Picture 24: Monitoring well MW14; view towards the northwest.

Picture 25: Monitoring well MW6-C.

Picture 28: Monitoring well MW13-A

Picture 26: Monitoring well MW6-A.

Picture 29: Monitoring wells MW15-A, MW15-B, and MW15-C.

Picture 27: Monitoring well MW13-A in the foreground; monitoring well MW13-B in the rear.

Picture 30: Monitoring well MW15-C.

Picture 31: Monitoring well MW15-A.

Picture 34: Monitoring well MW5.

Picture 32: Monitoring well MW15-B.

Picture 33: Monitoring well MW12.

APPENDIX C

INTERVIEW LIST
and
DOCUMENTATION

INTERVIEW DOCUMENTATION FORM

The following is a list of individual interviewed for this five-year review. See the attached contact record(s) for a detailed summary of the interviews.

Name	Title/Position	Organization	Date
Stuart Briggs	Manager	Osterman Propane	5/14/10
Jay Naparstek	Deputy Division Director	MassDEP	5/19/10
Thomas Pratti	Member	Planning Department	5/24/10
John Sharland	Resident	Town of Bridgewater	5/14/10
Scott Sandefur	Director of Environmental Safety & Health	American Tower Corporation	5/18/10
Diane Dugal	Associate Director of Technical Services	Bridgewater Public Library	5/11/10
Jonas Kazlauskas	Sewer Superintendent & Acting Water Superintendant	Bridgewater Sewer Department	5/18/10
Doug Sime	Health Agent	Bridgewater Health Department	5/11/10
Troy Clarkson	Municipal Administrator	Bridgewater Selectman's Office	5/21/10
Ian Phillips, LSP	Principal Scientist	Roux Associates, Inc.	5/7/10

INTERVIEW RECORD

Site Name: Cannons Engineering Corporation, Bridgewater (Bridgewater MA)	**EPA ID No.:** MAD079510780	
Subject: Five Year Review	**Time:** 1537 hours	**Date:** 5/11/10
Type: ☒ Telephone ☐ Visit ☐ Other **Location of Visit:**	☐ Incoming ☒ Outgoing	

Contact Made By:

Name: Joel Meunier	**Title:** Senior Environmental Scientist	**Organization:** AECOM

Individual Contacted:

Name: Doug Sime	**Title:** Health Agent	**Organization:** Bridgewater Health Department
Telephone No: 508-697-0903 **Fax No:** 508-697-0947 **E-Mail Address:** LSime@bridgewaterma.org	**Street Address:** Academy Building 1st Level 66 Central Square Bridgewater, MA	

1. What is your overall impression of the project? (general sentiment).

Interviewee thought that the project had been completed; was not aware of ongoing monitoring activities.

2. Has the site been the subject of any community concerns or complaints (e.g., odor, noise, health, etc.)?

No.

3. Do you feel well informed about site activities and progress of the cleanup?

No. Interviewee was not aware that the reference librarian of the Bridgewater Public Library is the custodian of certain project documents and reports.

4. Do you have any comments, suggestions, or recommendations regarding the project?

No. Interviewee stated that he did not have enough knowledge of the Site to address this question.

5. Are there any areas of known or suspected contamination at the site that

you feel are not being adequately addressed by the remedial action?

None known.

INTERVIEW RECORD

Site Name: Cannons Engineering Corporation, Bridgewater (Bridgewater MA)	**EPA ID No.:** MAD079510780	
Subject: Five Year Review	**Time:** 3:30 pm	**Date:** 5/19/10
Type: ☐ **Telephone** ☐ **Visit** ☒ **Other** **Location of Visit:** N/A: Form filled out by Interviewee and emailed to AECOM	☐ **Incoming** ☐ **Outgoing**	

Contact Made By:

Name: Joel Meunier	**Title:** Senior Environmental Scientist	**Organization:** AECOM

Individual Contacted:

Name: Jay Naparstek	**Title:** Deputy Division Director	**Organization:** MassDEP
Telephone No: 617-292-5697 **Fax No:** 617-292-5530 **E-Mail Address:** jay.naparstek@state.ma.us	**Street Address:** One Winter Street Boston, MA 02108	

1. What is your overall impression of the project? (general sentiment)

Appears to me to be well maintained and still protective.

2. Do you have any comments, suggestions, or recommendations regarding the project?

Would like a little more information on the paving that's been done recently at the site to be sure the re-grading was done in a way that did not affect the remedy.

3. Has the site been the subject of any community complaints directed to your agency (e.g., odor, noise, health, etc.)?

Not to my knowledge.

4. Do you have any recommendations for reducing or increasing activities at the site?

No....the current use seems appropriate.

5. Is there any other information that you wish to share that might be of use?

No

INTERVIEW RECORD

Site Name: Cannons Engineering Corporation, Bridgewater (Bridgewater MA)	**EPA ID No.:** MAD079510780	
Subject: Five Year Review	**Time:** 1510 hours	**Date:** 5/11/10
Type: ☒ **Telephone** ☐ **Visit** ☐ **Other** **Location of Visit:**	☐ **Incoming** ☒ **Outgoing**	

Contact Made By:

Name: Joel Meunier	**Title:** Senior Environmental Scientist	**Organization:** AECOM

Individual Contacted:

Name: Diane Dugal	**Title:** Associate Director of Technical Services	**Organization:** Bridgewater Public Library
Telephone No: 508-697-3331 **Fax No:** 508-279-1467 **E-Mail Address:** bwpl@sailsinc.org	**Street Address:** 15 South Street Bridgewater, MA 02324-2593	

1. **What is your overall impression of the project? (general sentiment)**

   Interviewee indicated that she knew little about the Site and thus, did not have enough information upon which to form an opinion.

2. **Are you familiar with the Site documents?**

   Interviewee indicated that she was.

3. **Do members of the community ever access the Site documents?**

   Interviewee indicated that the public infrequently accesses the Site documents.

4. **Has the site been the subject of any community complaints (e.g., odor, noise, health, etc.)?**

   Interviewee stated that she had not heard of any such complaints.

5. **Do you have any comments, suggestions, or recommendations regarding the project?**

   Interviewee stated that she did not.

6. **Is there any other information that you wish to share that might be of use?**

   Interviewee stated that she did not.

INTERVIEW RECORD

Site Name: Cannons Engineering Corporation, Bridgewater (Bridgewater MA)	**EPA ID No.:** MAD079510780	
Subject: Five Year Review	**Time:** 1130 hours	**Date:** 5/14/10
Type: ☐ Telephone ☒ Visit ☐ Other **Location of Visit:**	☐ Incoming ☐ Outgoing	

Contact Made By:

Name: Joel Meunier	**Title:** Senior Environmental Scientist	**Organization:** AECOM

Individual Contacted:

Name: Stuart Briggs	**Title:** Manager	**Organization:** Osterman Propane
Telephone No: 800-698-3131 **Fax No:** 508-697-3175 **E-Mail Address:** sbrigggs@ostermangas.com	**Street Address:** 42 First St Bridgewater, MA 02324	

1. **What is your overall impression of the project? (general sentiment)**

   Interviewee stated that the groundwater sampling team is polite, works in a professional manner, and always contacts him prior to sampling events.

2. **Has the site been the subject of any community concerns or complaints (e.g., odor, noise, health, etc.)?**

   Interviewee stated that he has not heard of any complaints.

3. **Do you feel well informed about site activities and progress of the cleanup?**

   Interviewee stated that he "absolutely" feels well informed about site activities and progress of the cleanup.

4. **Do you have any comments, suggestions, or recommendations regarding the project?**

   Interviewee stated that he did not.

5. Are you aware of any violations to the deed restriction that prohibits any groundwater use, prohibits excavation below the depth of the groundwater table without the prior approval of EPA and Massachusetts Department of Environmental Protection (MassDEP), and limits future use of the property to specific uses?

Interviewee stated that he was not.

6. Have there been any events of vandalism at the property?

Interviewee stated that vandalism is not an issue at the property.

7. Do you have any recommendations for reducing or increasing activities at the site?

Interviewee did not have any recommendations; he thought that the site (groundwater) should continue to be monitored as long as deemed necessary by EPA.

8. Is there any other information that you wish to share that might be of use?

Interviewee did not have any additional information to share at this time.

INTERVIEW RECORD

Site Name: Cannons Engineering Corporation, Bridgewater (Bridgewater MA)	**EPA ID No.:** MAD079510780	
Subject: Five Year Review	**Time:** 1000 hours	**Date:** 5/24/10
Type: ☒ **Telephone** ☐ **Visit** ☐ **Other** **Location of Visit:**	☐ **Incoming** ☒ **Outgoing**	

Contact Made By:

Name: Joel Meunier	**Title:** Senior Environmental Scientist	**Organization:** AECOM

Individual Contacted:

Name: Thomas Pratti	**Title:** Member, Planning Department	**Organization:** Bridgewater Planning Department
Telephone No: 508.697.0942 **Fax No:** 508.697.0940 **E-Mail Address:** Planning@Bridgewaterma.org	**Street Address:** Academy Building 2nd Level 66 Central Square Bridgewater, MA 02324	

1.A. What is your overall impression of the project? (general sentiment)

Interviewee indicated that he did not know enough about the current status of the Site to form an opinion.

2.A. Do you feel well informed about site activities and progress of the cleanup?

Interviewee stated that he did not know enough about the Site to form an opinion.

3.A. Are there any areas of known or suspected contamination at the site that you feel are not being adequately addressed by the remedial actions?

Interviewee indicated that he did not know of any such areas.

4.A. Do you have any comments, suggestions, or recommendations regarding the project?

Interviewee indicated that he did not.

SUPPLEMENTAL QUESTIONS

1.B. Has site land use or ownership changed?

Interviewee indicated that he was not aware of any ownership changes.

2.B. Has site occupancy changed? Are there any occupancy changes in the foreseeable future? If so, please describe.

Interviewee indicated that he was not aware of any past or pending occupancy changes.

3.B. What is the zoning of the property?

Interviewee indicated that the property is zoned as either Industrial A or Industrial B.

4.B. Are you aware of the deed restriction that prohibits any groundwater use, prohibits excavation below the depth of the groundwater table without the prior approval of EPA and Massachusetts Department of Environmental Protection (MADEP), and limits future use of the property to specific uses?

Interviewee indicated that he was not aware of the deed restriction.

5.B. What are the planned future uses of the property (if different from current uses)?

Interviewee stated that he did not know of any planned future uses of the property that differed from the current uses.

6.B. Are there plans to use groundwater on-site in the future?

Interviewee stated that he was not aware of any such plans.

INTERVIEW RECORD

Site Name: Cannons Engineering Corporation, Bridgewater (Bridgewater MA)	**EPA ID No.:** MAD079510780	
Subject: Five Year Review	**Time:** 1710 hours	**Date:** 5/14/10
Type: ☒ Telephone ☐ Visit ☐ Other **Location of Visit:**	☒ Incoming ☐ Outgoing	

Contact Made By:

Name: Joel Meunier	**Title:** Senior Environmental Scientist	**Organization:** AECOM

Individual Contacted:

Name: John Sharland	**Title:** N/A	**Organization:** Town Resident
Telephone No: [redacted] **Fax No:** N/A **E-Mail Address:** N/A	**Street Address:** [redacted] Bridgewater, MA 02324-2336	

1. Are you aware of the Site, and if yes, what is your overall impression of the project? (general sentiment)

Interviewee was not happy that his tax dollars are funding the 5-year review process.

2. Do you feel well informed regarding Site activities and the progress of the cleanup?

Interviewee indicated that he did not know that activities were ongoing at the Site, and was not aware of the documents that EPA files with the Bridgewater reference librarian.

3. Do you have any recommendations for reducing or increasing activities at the site?

Interviewee indicated that he wanted to see the 5-year review process cease, as he felt that it is a waste of taxpayer dollars.

4. Is there any other information that you wish to share that might be of use?

Interviewee did not have any additional information that he wished to share.

INTERVIEW RECORD

Site Name: Cannons Engineering Corporation, Bridgewater **(Bridgewater MA)**	**EPA ID No.:** MAD079510780	
Subject: Five Year Review	**Time:** N/A	**Date:** 5/17/10
Type: ☐ **Telephone** ☐ **Visit** ☐ **Other** **Location of Visit:** N/A: Form filled out by Interviewie and emailed to AECOM	☐ **Incoming** ☐ **Outgoing**	

Contact Made By:

Name: Joel C. Meunier	**Title:** Senior Environmental Scientist	**Organization:** AECOM, Inc.

Individual Contacted:

Name: Ian Phillips, LSP	**Title:** Principal Scientist	**Organization:** Roux Associates, Inc. (RP Contractor)
Telephone No: 781.270.6600 **Fax No:** 781.270.9066 **E-Mail Address:** iphillips@rouxinc.com	**Street Address:** 67 S. Bedford Street, Suite 101W Burlington, MA 01803	

1.A. What is your overall impression of the project? (general sentiment)

Overall, the project has been very successful and has proceeded as predicted 20 years ago. MCLs for the contaminants of concern (VOCs) have been met at all monitoring wells on the Site.

2.A. Is the remedy functioning as expected? How well is the remedy performing?

The remedy, Monitored Natural Attenuation (MNA), has functioned as expected and has attained the goals specified in the ROD. VOC concentrations in all monitoring wells at the Site have been below MCLs for each sampling round for the past three years.

3.A. What does the monitoring data show? Are there any trends that show contaminant levels are decreasing?

A decreasing trend of VOC concentrations have been shown in the monitoring wells and all VOC concentrations have been below MCLs for the past three years.

4.A. Do you have any comments, suggestions, or recommendations regarding the project?

At this time, it is my conclusion that the requirements of the Record of Decision have been met and my recommendation that no further groundwater monitoring is required.

SUPPLEMENTAL QUESTIONS

Groundwater Cleanup

1.B. Are certain wells continuing to have high detections while others are dropping? What explains these results?

No. VOC concentrations show a decreasing trend throughout the Site and are below MCLs.

2.B. Has the mix of contaminants changed in the Groundwater? What accounts for these changes?

No, the mix of contaminants has not changed.

3.B. Is there an indication that DNAPL or LNAPL is present? How have you checked or verified?

There is no indication that DNAPL or LNAPL is present at the Site.

4.B. What are your most recent projections for achieving cleanup overall or in subportions of the site?

Cleanup has been achieved and documented at this Site and no further actions are required.

5.B. Do you expect cleanup to be achieved below regulatory prescribed levels or do you envision that a constant/asymptotic level of contamination will remain above numerical cleanup criteria?

Cleanup has been achieved and documented at this Site and no further actions are required.

Potential Local Contaminant/Hydraulic Impacts/Effects

6.B. What, if any, upgradient sites are believed to be impacting site cleanup and to what degree? Are there any suggested steps that could be taken to deal with impacts?

There are no documented impacts from upgradient sites and, therefore, no actions are being considered or taken.

7.B. Any new pumping wells in the vicinity of the site?

I am not aware of any new pumping wells in the vicinity of the Site.

8.B. Are you noticing the impact of offsite entities on the aquifer in terms of offsite pumping or other hydraulic impacts that may be impacting the local water table?

No. There has been no evidence of impacts on the aquifer/local water table from offsite pumping or other hydraulic impacts from offsite entities.

9.B. How has the natural gradient changed and are seasonal gradients present that vary from the average yearly gradient?

Over the past 20 years of monitoring, the natural gradients have remained relatively constant.

Nature and Extent

10.B. Is it possible that there are continuing sources of release at the site.

There is no evidence of continuing sources of release at the Site.

Reporting

11.B. What site investigation and remediation reports have been generated in the past 5 years?

Draft reports of the annual groundwater monitoring results have been submitted to EPA each of the past five years.

12.B. Provide a summary of the types of problems or errors that have been made in the prior 5 years.

There have been no problems or errors of significance noted in the past five years.

Land Use

13.B. Has site land use or ownership changed?

Land use has not changed in the past five years and I do not believe that ownership has changed.

14.B. Has site occupancy changed? Are there any occupancy changes in the foreseeable future? If so, please describe.

Site occupancy has not changed in the past five years and I am unaware of any occupancy changes in the foreseeable future.

15.B. has the zoning of the property changed?

I am not aware of any zoning changes of the property.

16.B. Are there new industrial processes occurring at the site or has there been a change in chemicals used at the site?

I am not aware of any new industrial processes occurring at the Site or any changes in the chemicals used.

17.B. What are the current uses of the property (indoor and outdoor)?

The property is used for the storage and distribution of propane. It is occupied by the following structures located in the upland area: 1) an office building, 2) two aboveground propane storage tanks (ASTs) on a concrete pad, and 3) a warehouse. In addition, a cell phone tower is located on the Site.

18.B. How frequently are authorized individuals present at the property (days/week)?

I believe that there are authorized people at the property 5-7 days/week.

19.B. Is groundwater currently used (e.g., as process water) on the property?

No. Groundwater use is prohibited on the property. The prohibition is documented in the deed for the property.

20.B. Are there plans to use groundwater on-site in the future?

There are no plans for groundwater use on-site. Use of groundwater is prohibited.

21.B. Are you aware of any violations to the deed restriction that prohibits any groundwater use, prohibits excavation below the depth of the groundwater table without the prior approval of EPA and Massachusetts Department of Environmental Protection (MassDEP), and limits future use of the property to specific uses?

I am unaware of any violations of the deed restrictions. However, at the time that the Site was redeveloped by Osterman Propane, EPA approved the installation of a septic system in the middle of the Site. I am unaware of any of the approvals given for the construction of the cell phone tower at the Site.

22.B. Anything new onsite that might be a violation of the institutional controls (e.g., new wells or any other construction or excavation that extended below the water table).

I am unaware of anything new on Site that may be a violation of the institutional controls.

Exposure Information

23.B. What measures have been taken to secure the site and the contaminated areas (e.g., fencing, locks, etc.)? How successful have these measures been?

There are no special security measures employed at the Site related to the historical contamination. Security measures currently relate to the occupants (Osterman, cell phone tower).

24.B. Is there evidence or sightings of trespassers on the property? If yes, how often and what type of activities do they engage in?

I am unaware of any issues with trespassers on the property.

25.B. Have there been any events of vandalism at the property?

I am unaware of any issues with trespassers on the property.

26.B. Have there been any unusual or unexpected activities or events at the site (e.g., flooding)?

I am unaware of any unusual or unexpected activities on the property.

27.B. Has the site been the subject of any community complaints (e.g., odor, noise, health, etc.)?

Not that I am aware of.

28.B. Have there been any health and safety issues on-site?

I do not know for the Osterman or cell tower employees. There have been none for Roux Associates.

29.B. Condition of monitoring wells (are they locked, Damaged, etc.)

All monitoring wells are locked. The only "damage" was an insect infestation in the top of one well that was removed manually (no chemicals).

30.B. General condition of the site

Osterman appears to manage the Site in a reasonable manner. Many years ago their housekeeping was not as good (see previous annual groundwater monitoring reports).

Wrap-Up

31.B. Do you have any recommendations for reducing or increasing activities at the site?

We recommend that monitoring activities be terminated at the Site. The requirements of the ROD have been met. VOC concentrations in groundwater have been monitored for 20 years and demonstrate decreasing concentration trends. The VOC concentrations at every monitoring well on the Site have been below MCLs for three or more years.

No further actions, other than delisting the Site, are required.

32.B. Is there any other information that you wish to share that might be of use?

Information gathered as part of the previous Five Year Review should be considered. As part of the last Five Year Review, vapor intrusion was assessed and found by EPA not to be an issue at the Site. The results of the chemical testing of the soil and groundwater at the Site as well as the work done prior to the construction of the Osterman building support the previous Five Year Review conclusion that vapor intrusion was not an issue.

The previous Five Year Review also suggested that further investigations around

monitoring well MW-18 A/B/C should be performed. At the time, we disagreed with the need for further investigations and the groundwater monitoring for the last five years has shown a strong and consistent downward trend.

INTERVIEW RECORD

Site Name: Cannons Engineering Corporation, Bridgewater (Bridgewater MA)	**EPA ID No.:** MAD079510780	
Subject: Five Year Review	**Time:** 1130	**Date:** 5/21/10
Type: ☒**Telephone** ☐ **Visit** ☐ **Other** **Location of Visit:**	☐ **Incoming**	☒ **Outgoing**

Contact Made By:

Name: Joel Meunier	**Title:** Senior Environmental Scientist	**Organization:** AECOM

Individual Contacted:

Name: Troy Clarkson	**Title:** Municipal Administrator	**Organization:** Bridgewater Selectman's Office
Telephone No: 508.697.0919 **Fax No:** 508.697.1468 **E-Mail Address:**tclarkson@Bridgewaterma.org	**Street Address:** Memorial Building 25 South Street Bridgewater, MA	

1.A. What is your overall impression of the project? (general sentiment)

Interviewee is not familiar with the project.

2.A. Do you feel well informed about site activities and progress of the cleanup, and do you have any comments, suggestions, or recommendations regarding the project?

Interviewee did not feel informed regarding site activities.

3.A. Are there any areas of known or suspected contamination at the site that you feel are not being adequately addressed by the remedial actions?

Interviewee did not feel informed enough about the project to address this question.

4.A. Do you have any comments, suggestions, or recommendations regarding the project?

Interviewee did not have any comments, suggestions, or recommendations regarding the project.

INTERVIEW RECORD

Site Name: Cannons Engineering Corporation, Bridgewater (Bridgewater MA)	**EPA ID No.:** MAD079510780	
Subject: Five Year Review	**Time:** 1100 hours	**Date:** 5/18/10
Type: ☒ **Telephone** ☐ **Visit** ☐ **Other** **Location of Visit:**	☒ **Incoming** ☐ **Outgoing**	

Contact Made By:

Name: Joel Meunier	**Title:** Senior Environmental Scientist	**Organization:** AECOM

Individual Contacted:

Name: Scott Sandefur	**Title:** Director of Environmental Safety & Health	**Organization:** American Tower Corporation
Telephone No: 480-730-2558 **Fax No:** 480-897-1349 **E-Mail Address:** N/A	**Street Address:** 116 Huntington Avenue Fl 11 Boston, MA 02116-5749	

1.A. What is your overall impression of the project? (general sentiment)

Interviewee indicated that he did not know enough about the Site to form an opinion.

SUPPLEMENTAL QUESTIONS

Land Use

1.B. Has site land use or ownership changed?

Interviewee indicated that land use and\or ownership has not changed in the past 5 years to the best of his knowledge.

2.B. Has site occupancy changed? Are there any occupancy changes in the foreseeable future? If so, please describe.

Interviewee indicated that site occupancy has not changed in the past 5 years to the best of his knowledge.

3.B. Are you aware of the deed restriction that prohibits any groundwater use, prohibits excavation below the depth of the groundwater table without the prior approval of EPA and Massachusetts Department of Environmental Protection (MassDEP), and limits future use of the property to specific uses?

Interviewee indicated that he was aware of the deed restriction.

Exposure Information

4.B. Is there evidence or sightings of trespassers on the property? If yes, how often and what type of activities do they engage in?

Interviewee stated that he did not know of any incidents of trespass on the property.

5.B. Have there been any events of vandalism at the property?

Interviewee stated that he did not know of any incidents of vandalism on the property.

6.B. Have there been any unusual or unexpected activities or events at the site (e.g., flooding)?

Interviewee stated that he did not know of any unusual or unexpected activities or events at the site.

Wrap-Up

7.B. Do you have any recommendations for reducing or increasing activities at the site?

Interviewee stated that he did not have any recommendations regarding site activities.

8B. Do you have any comments, suggestions, or recommendations regarding the project?

Interviewee stated that he did not have any comments, suggestions, or recommendations regarding the project.

9.B. Is there any other information that you wish to share that might be of use?

Interviewee stated that he did not have any other information to share regarding the project.

INTERVIEW RECORD

Site Name: Cannons Engineering Corporation, Bridgewater (Bridgewater MA)	**EPA ID No.:** MAD079510780	
Subject: Five Year Review	**Time:** 1645	**Date:** 5/18/10
Type: ☒ **Telephone** ☐ **Visit** ☐ **Other** **Location of Visit:**	☐ **Incoming**	☒ **Outgoing**

Contact Made By:

Name: Joel Meunier	**Title:** Senior Environmental Scientist	**Organization:** AECOM

Individual Contacted:

Name: Jonas Kazlauskas	**Title:** Sewer Superintendent & Acting Water Superintendant	**Organization:** Bridgewater Sewer Department
Telephone No: 508-697-0910 **Fax No:** 508-279-1307 **E-Mail Address:** JKazlauskas@bridgewaterma.org	**Street Address:** 66 Central Square Bridgewater, MA	

1.A. What is your overall impression of the project? (general sentiment)

Interviewee indicated that he did not know enough about the Site to form an opinion.

2.A. Is the remedy functioning as expected? How well is the remedy performing?

Interviewee indicated that he did not know enough about the Site to form an opinion.

3.A. Do you feel well informed about site activities and progress of the cleanup?

Interviewee indicated that he has not been informed of the site activities and progress of the cleanup.

4.A. Are there any areas of known or suspected contamination at the site that you feel are not being adequately addressed by the remedial actions?

Interviewee indicated that he did not know of any such areas.

5.A. Do you have any comments, suggestions, or recommendations regarding the project?

Interviewee indicated that he did not.

SUPPLEMENTAL QUESTIONS

Potential Local Contaminant/Hydraulic Impacts/Effects

1.B. What, if any, upgradient sites are believed to be impacting site cleanup and to what degree? Are there any suggested steps that could be taken to deal with impacts?

Interviewee indicated that he did not know of any such upgradient sites.

2.B. Are you noticing the impact of offsite entities on the aquifer in terms of offsite pumping or other hydraulic impacts that may be impacting the local water table?

Interviewee indicated that he didn't know of any such impacts, but that he also has not specifically looked into this issue either.

3.B. How has the natural gradient changed and are seasonal gradients present that vary from the average yearly gradient?

Interviewee indicated that he didn't know of any such gradient changes, but that he also has not specifically looked into this issue either.

Land Use

4.B. Are you aware of the deed restriction that prohibits any groundwater use, prohibits excavation below the depth of the groundwater table without the prior approval of EPA and Massachusetts Department of Environmental Protection (MassDEP), and limits future use of the property to specific uses?

Interviewee indicated that he was not aware of the deed restrictions.

5.B. Anything new onsite that might be a violation of the institutional controls (e.g., new wells or any other construction or excavation that extended below the water table).

Interviewee stated that knew of nothing onsite that would violate the institutional controls.

Wrap-Up

6.B. Do you have any recommendations for reducing or increasing activities at the site?

The interviewee did not have any recommendations to make regarding activities at the site.

7.B. Is there any other information that you wish to share that might be of use?

The interviewee did not have any other information to share regarding the site.

APPENDIX D

HUMAN HEALTH RISK REVIEW CALCULATIONS

APPENDIX D-1

VAPOR INTRUSION CALCULATIONS

TABLE 1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
CANNONS ENGINEERING BRIDGEWATER SUPERFUND SITE

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Maximum Detections			Maximum Concentration (Qualifier) (1)	Units	Concentration Used for Screening (2)	Units	Screening Toxicity Value (N/C) (3)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (4)
			Year 17	Year 18	Year 19									
Site-wide														
	75-34-3	1,1-Dichloroethane	0.97	0.39 J	0.61	0.97	ug/L	0.118	ug/m^3	1.5 c	N/A	N/A	N	BSL
	95-50-1	1,2-Dichlorobenzene	0.87	0.76	0.53 J	0.87	ug/L	0.0236	ug/m^3	21 n	N/A	N/A	N	BSL
	107-06-2	1,2-Dichloroethane	2	0.89	1.3	2	ug/L	0.049	ug/m^3	0.094 c	N/A	N/A	N	BSL
	78-93-3	2-Butanone		2.2 J		2.2 J	ug/L	0.0035	ug/m^3	520 n	N/A	N/A	N	BSL
	67-64-1	Acetone		9.4	2.8 J	9.4	ug/L	0.014	ug/m^3	3200 n	N/A	N/A	N	BSL
	71-43-2	Benzene	0.41 J	0.21 J	0.21 J	0.41 J	ug/L	0.052	ug/m^3	0.31 c	N/A	N/A	N	BSL
	107-14-2	Chloroacetonitrile			8.5 J	8.5 J	ug/L	0.0272	ug/m^3	0.036 c	N/A	N/A	N	BSL
	108-90-7	Chlorobenzene	23	11	6.8	23	ug/L	1.48	ug/m^3	5.2 n	N/A	N/A	N	BSL
	74-87-3	Chloromethane		0.58	0.59	0.59	ug/L	0.2	ug/m^3	9.4 n	N/A	N/A	N	BSL
	156-59-2	cis-1,2-Dichloroethene	4.5	3.9	4.1	4.5	ug/L	0.386	ug/m^3	6.3 n	N/A	N/A	N	BSL
	60-29-7	Diethyl ether	0.36 J	0.29 J	0.45 J	0.45 J	ug/L	0.355	ug/m^3	7.3 n	N/A	N/A	N	BSL
	1634-04-4	Methyl tert-butyl ether	9.9	6.1	3.1	9.9	ug/L	0.173	ug/m^3	0.94 n	N/A	N/A	N	BSL
	75-09-2	Methylene chloride	1.6			1.6	ug/L	0.0971	ug/m^3	5.2 c	N/A	N/A	N	BSL
	107-12-0	Propionitrile			3.1 J	3.1 J	ug/L	0.00994	ug/m^3	0.036 c	N/A	N/A	N	BSL
	127-18-4	Tetrachloroethene	0.54	0.34 J	1.3	1.3	ug/L	0.417	ug/m^3	0.41 c	N/A	N/A	Y	ASL
	79-01-6	Trichloroethene	1.3	1.2	0.8	1.3	ug/L	0.273	ug/m^3	1.2 c	N/A	N/A	N	BSL
	75-01-4	Vinyl chloride	1.7	1.7	1.9	1.9	ug/L	1.74	ug/m^3	0.16 c	N/A	N/A	Y	ASL
	1330-20-7	Xylene (Total)			0.56	0.56	ug/L	0.0739	ug/m^3	10 n	N/A	N/A	N	BSL
	84-66-2	Diethylphthalate			0.53 J	0.53 J	ug/L	NV						

Notes:
Includes all groundwater monitoring locations for Years 17, 18, and 19.
N/A = Not Applicable or Not Available

[1] **Organic Data Qualifiers**
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

[2] The maximum concentration was used to estimate possible indoor air concentrations (Cbuilding) using the Johnson-Ettinger model (see attachments).
NV = Not Volatile (molecular weight > 200 g/mol or Henry's law constant < 1E-05 atm-m3/mol)

[3] Screening toxicity values are the USEPA (December 2009) ORNL screening levels for Residential Air.
c = Carcinogen
n = Noncarcinogen (adjusted to a hazard quotient of 0.1)
The Regional Screening Level (RSL) values for noted analytes are as follows:
RSL for trans-1,2-dichloroethene has been used for cis-1,2-dichloroethene.
RSL for acrylonitrile has been used for chloroacetonitrile and propionitrile.
RSL for diethyl ether was unavailable in the most recent ORNL tables. Historical value is presented.

[4] Codes used for rationale are as follows:
Selection Reason: Above Screening Levels (ASL)
No Screening Level (NSL)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

TABLE 2
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
CANNONS ENGINEERING BRIDGEWATER SUPERFUND SITE

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Indoor Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Adult	Site-wide	$CA_{building}$	Modeled Indoor Air Concentration	See Table 1	ug/m^3	See Table 1	
				ET	Exposure Time	24	hours/day	USEPA, 1997	$\frac{CA_{building} \times ET \times EF \times ED}{AT \times CF}$
				EF	Exposure frequency	350	days/year	USEPA, 2002	
				ED	Exposure duration	24	years	USEPA, 2004	
				CF	Conversion factor	24	hours/day		
				ATc	Averaging time for carcinogens	25,550	days	USEPA, 1989	
				ATnc	Averaging time for noncarcinogens	8,760	days	USEPA, 1989	
		Young Child	Site-wide	$CA_{building}$	Modeled Indoor Air Concentration	See Table 1	ug/m^3	See Table 1	
				ET	Exposure Time	24	hours/day	USEPA, 1997	$\frac{CA_{building} \times ET \times EF \times ED}{AT \times CF}$
				EF	Exposure frequency	350	days/year	USEPA, 2002	
				ED	Exposure duration	6	years	USEPA, 2004	
				CF	Conversion factor	24	hours/day		
				ATc	Averaging time for carcinogens	25,550	days	USEPA, 1989	
				ATnc	Averaging time for noncarcinogens	2,190	days	USEPA, 1989	

Indoor air concentration will be modeled with Johnson & Ettinger Model.

USEPA. 1989. Risk Assessment Guidance for Superfund, Part A, Interim Final. EPA/540/1-89/002. December 1989.

USEPA. 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August 1997.

USEPA. 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. December 2002.

USEPA. 2004. Risk Assessment Guidance for Superfund, Part E, Supplemental Guidance for Dermal Risk Assessment. EPA/540/R/99/005. July 2004.

TABLE 3

NON-CANCER TOXICITY DATA -- INHALATION

CANNONS ENGINEERING BRIDGEWATER SUPERFUND SITE

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Extrapolated RfD[(1)]		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC : Target Organ(s)	
		Value	Units	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Tetrachloroethene	Chronic	2.7E+02	ug/m^3	N/A	N/A	CNS	100	ATSDR	05/14/10
Vinyl Chloride	Chronic	1.0E+02	ug/m^3	N/A	N/A	Liver	30	IRIS	05/14/10

IRIS = Integrated Risk Information System

ATSDR = Agency for Toxic Substances and Disease Registry

N/A = Not Applicable or Not Available

TABLE 4

CANCER TOXICITY DATA -- INHALATION

CANNONS ENGINEERING BRIDGEWATER SUPERFUND SITE

Chemical of Potential Concern	Unit Risk		Inhalation Cancer Slope Factor		Weight of Evidence/ Cancer Guideline Description	Unit Risk : Inhalation CSF	
	Value	Units	Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
Tetrachloroethene	5.9E-06	$(ug/m^3)^{-1}$	N/A	N/A	B2	CalEPA	05/14/10
Vinyl Chloride	4.4E-06	$(ug/m^3)^{-1}$	N/A	N/A	A	IRIS	05/14/10

IRIS = Integrated Risk Information System

CalEPA = California Environmental Protection Agency, Office of Environmental Health Hazard Assessment

N/A = Not Applicable

EPA Group:

A - Human carcinogen

B1 - Probable human carcinogen - indicates that limited human data are available

B2 - Probable human carcinogen - indicates sufficient evidence in animals and inadequate or no evidence in humans

C - Possible human carcinogen

D - Not classifiable as a human carcinogen (by the oral route)

E - Evidence of noncarcinogenicity

TABLE 5

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

CANNONS ENGINEERING BRIDGEWATER SUPERFUND SITE

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Indoor Air	Site-wide	Inhalation	Tetrachloroethene	4E-01	ug/m^3	1.4E-01	ug/m3	5.9E-06	$(ug/m3)^{-1}$	8.1E-07	4.0E-01	ug/m3	2.7E+02	ug/m3	1.5E-03
				Vinyl chloride	2E+00	ug/m^3	5.7E-01	ug/m3	4.4E-06	$(ug/m3)^{-1}$	2.5E-06	1.7E+00	ug/m3	1.0E+02	ug/m3	1.7E-02
			Exp. Route Total								3E-06					2E-02
		Exposure Point Total									3E-06					2E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
									Total of Receptor Risks Across All Media		N/A			Total of Receptor Hazards Across All Media		N/A

TABLE 6

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

CANNONS ENGINEERING BRIDGEWATER SUPERFUND SITE

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Indoor Air	Site-wide	Inhalation													
				Tetrachloroethene	4E-01	ug/m^3	3.4E-02	ug/m3	5.9E-06	$(ug/m3)^{-1}$	2.0E-07	4.0E-01	ug/m3	2.7E+02	ug/m3	1.5E-03
				Vinyl chloride	2E+00	ug/m^3	1.4E-01	ug/m3	4.4E-06	$(ug/m3)^{-1}$	8.3E-06	1.7E+00	ug/m3	1.0E+02	ug/m3	1.7E-02
			Exp. Route Total								8E-06					2E-02
		Exposure Point Total									8E-06					2E-02
	Exposure Medium Total										N/A					N/A
Medium Total											N/A					N/A
										Total of Receptor Risks Across All Media	N/A			Total of Receptor Hazards Across All Media		N/A

Notes

Early-life cancer risk calculations for vinyl chloride added to standard cancer risk calculations [chronic daily intake (CDI) x CSF or Unit Risk]. Exposure parameters noted below are defined in Table 2 for the young child (ages 1-6).

Inhalation early-life cancer risk = EPC (ug/m^3) x Unit Risk $(ug/m^3)^{-1}$ x ET (hr/day) / CF (24 hr/day)

TABLE 7

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

CANNONS ENGINEERING BRIDGEWATER SUPERFUND SITE

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Young Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Young Child + Adult					Non-Carcinogenic Hazard Quotient Young Child				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Indoor Air	Site-wide											
			Tetrachloroethene	- -	1E-06	- -	- -	1E-06	CNS	- -	1E-03	- -	1E-03
			Vinyl chloride	- -	1E-05	- -	- -	1E-05	Liver	- -	2E-02	- -	2E-02
			Chemical Total	- -	1E-05	- -	- -	1E-05		- -	2E-02	- -	2E-02
			Radionuclide Total										
		Exposure Point Total						1E-05					2E-02
	Exposure Medium Total							1E-05					2E-02
Medium Total								1E-05					2E-02
Receptor Total								1E-05					2E-02

- - = Not Evaluated

N/A = Not Applicable

Total Risk Across All Media: 1E-05

Total Hazard Across All Media: 2E-02

Total Blood HI =	N/A
Total Cardiovascular HI =	N/A
Total Reproductive HI =	N/A
Total General Toxicity HI =	N/A
Total GI System HI =	N/A
Total Immune System HI =	N/A
Total Kidney HI =	N/A
Total Liver HI =	2E-02
Total CNS HI =	1E-03
Total Skin HI =	N/A
Total Spleen HI =	N/A
Total Respiratory HI =	N/A
Total Developmental HI =	N/A
Total Endocrine HI =	N/A

APPENDIX D-2
EARLY LIFE RISK CALCULATIONS

Table 1
Cancer Risk Summary Table - Early-Life Evaluation for Trespasser
Cannons Engineering Bridgewater - Five Year Review

Scenario	COPCs	Cleanup Concentration mg/kg	Exposure Frequency days/year	Exposure Duration years	Ingestion Rate mg/day	Oral ABS[1]	Surface Area cm^2	Dermal Adherence Factor [1,2] mg/cm^2-day	Dermal ABS[1,3]	Body Weight kg	Averaging Time years	CSF mg/kg-d	Intake mg/kg-d	Total Cancer Risk
Calculations from 3rd five-year review														
Trespasser	Benzo(a)pyrene	3	50	10	100	1	4300	0.04	0.13	40	70	7.30E+00	1.80E-07	1.31E-06
	PCBs	9	50	10	100	1	4300	0.04	0.14	40	70	2.00E+00	5.46E-07	1.09E-06
Total														2.40E-06
Early-life Calculations[4]														
Trespasser	Benzo(a)pyrene	3	50	10	100	1	4300	0.04	0.13	40	70	7.30E+00	1.80E-07	3.67E-06
	PCBs	9	50	10	100	1	4300	0.04	0.14	40	70	2.00E+00	5.46E-07	1.09E-06
Total														4.76E-06

$$\text{Intake} = \frac{\text{(Cleanup concentration mg/kg * Exposure Frequency d/yr * Exposure Duration yr* ((Ingestion Rate mg/d * ABSoral) + (Exposed Surface Area } cm^2\text{/d * Dermal Adherence Factor } mg/cm^2 \text{ * ABSdermal)))}}{\text{(Body Weight kg * Averaging Time yr * 365 d/yr * Conversion Factor 1000000 mg/kg)}}$$

Cancer Risk = Intake*CSF

1 Oral ABS and Dermal ABS are absorption factors based on exposures to soils.
2 Exhibit 3-3 US EPA, 2004 RAGS E, Dermal Risk Assessment Guidance.
3 Exhibit 3-4 US EPA, 2004 RAGS E, Dermal Risk Assessment Guidance.
4 Early-life cancer risk calculations for carcinogenic PAHs calculated by multiplying the result by the default age-dependent adjustment factor (ADAF) of 3 for 9/10 of the result (ages 8-16) and an ADAF of 1 for 1/10 of the result (age 17).

Attachment 2
Non-Cancer Risk Summary Table
Cannons Engineering Bridgewater - Five Year Review

Scenario	COPCs	Cleanup Concentration mg/kg	Exposure Frequency days/year	Exposure Duration years	Ingestion Rate mg/day	Oral ABS[1]	Surface Area cm^2	Dermal Adherence Factor [1,2] mg/cm^2-day	Dermal ABS[1,3]	Body Weight kg	Averaging Time years	RfD mg/kg-d	Intake mg/kg-d	Total Hazard Index
Trespasser	PAHs	3	50	10	100	1	4300	0.04	0.13	40	10	2.00E-02	1.26E-06	6.29E-05
	PCBs	9	50	10	100	1	4300	0.04	0.14	40	10	2.00E-05	3.82E-06	1.91E-01
Total														1.91E-01
Worker	PAHs	3	150	25	100	1	3300	0.02	0.13	70	25	2.00E-02	1.91E-06	9.56E-05
	PCBs	9	150	25	100	1	3300	0.02	0.14	70	25	2.00E-05	5.77E-06	2.89E-01
Total														2.89E-01

$$\text{Intake} = \frac{\text{(Cleanup concentration mg/kg * Exposure Frequency d/yr * Exposure Duration yr* ((Ingestion Rate mg/d * ABSoral) + (Exposed Surface Area cm2/d * Dermal Adherence Factor mg/cm2 * ABSdermal))}}{\text{(Body Weight kg * Averaging Time yr * 365 d/yr * Conversion Factor 1000000 mg/kg)}}$$

Hazard Index = Intake/RfD

1 Oral ABS and Dermal ABS are absorption factors based on exposures to soils.
2 Exhibit 3-3 US EPA, 2004 RAGS E, Dermal Risk Assessment Guidance.
3 Exhibit 3-4 US EPA, 2004 RAGS E, Dermal Risk Assessment Guidance.

APPENDIX E

DEED RESTRICTIONS

Received & Recorded
PLYMOUTH COUNTY
REGISTRY OF DEEDS
26 SEP 1991 09:48AM
JOHN D.RIORDAN
REGISTER

DECLARATION OF RESTRICTIONS

Whereas, the Town of Bridgewater owns a certain parcel of land situated on the northwesterly side of proposed subdivision street called First Street, and shown as Lot 4 (the "Premises") on plan entitled "Bridgewater Industrial Park, a Subdivision of Land in Bridgewater, Mass., owned by Benson Realty Trust, Bridgewater, Mass., Scale 1" = 40', dated June 2, 1970, C.A. Pickering Associates, Inc., Consulting Engineers," recorded with Plymouth County Registry of Deeds in Plan Book 15, Page 400;

Whereas, former uses on the Premises included handling, storing and incinerating chemical wastes which contaminated the soil and groundwater;

Whereas, the Premises is located within the Cannons Engineering Corporation Superfund Site (the "Site") in Bridgewater, Massachusetts, which was listed on the National Priority List of hazardous substances sites pursuant to Section 105 of Comprehensive Environmental Response, Compensation, and

Zucker
ironmental Protection Agency
nnedy Federal Bldg., RCT
, MA 02203-2211

Liability Act ("CERCLA"), 42 U.S.C. § 9605, on September 8, 1983;

Whereas, the United States Environmental Protection Agency ("USEPA"), in consultation with the Massachusetts Department of Environmental Protection ("MADEP"), has selected and overseen the implementation of remedial action for the Site pursuant to CERCLA; and

Whereas, the USEPA, in consultation with the MADEP, has determined that removal and treatment of the contaminated soils located above groundwater level will remove or limit the source of contamination to the groundwater and that the effects of natural attenuation are expected to reduce contaminants in the groundwater to cleanup target levels (e.g., Benzene, 5 ppb; Trichloroethylene, 5 ppb; and Vinyl Chloride, 2 ppb) in fifteen (15) to twenty (20) years;

NOW, THEREFORE, in order to protect the health, safety and welfare of the inhabitants of the Town of Bridgewater, the Town of Bridgewater hereby grants the following restrictions to the USEPA, its successors and assigns, and the MADEP, its successors and assigns, which inure to their benefit;

(1) The Premises are hereby restricted to the following uses:

(a) The Premises are restricted to the following municipal or town uses, until the USEPA and MADEP provide

certification to be recorded in the Registry of Deeds that other municipal and town uses are permissible: municipal office buildings, municipal storage facilities, and municipal fire stations. The term "municipal and town uses" as used in this subparagraph means uses of the Premises directly by the Town of Bridgewater, and not by any lessee of the Town of Bridgewater or any subsequent owner or lessee of the Premises.

(b) In addition to the restricted uses provided in subparagraph (1)(a) hereof, the Premises are further restricted to the uses by private parties listed in the current Town of Bridgewater Protective Zoning By-Laws, in Table 6.3(D) [Office and Laboratory Uses], (E) [Retail Business and Consumer Service Establishments], (F) [Automotive Service and Open Air Drive-In Retail Service], and (G) [Industrial, Wholesale and Transportation Uses], until the USEPA and MADEP provide certification to be recorded in the Registry of Deeds that other uses are permissible (a list of these uses is provided in Attachment A to this Declaration of Restrictions). Notwithstanding the provisions set forth in the preceding sentence, the uses listed in Table 6.3(F)(7) of the current Town of Bridgewater Protective Zoning By-Laws shall not be permitted at the Premises.

(2) Except as authorized by the USEPA and MADEP pursuant to

the remedial action selected for the Site which includes longterm groundwater monitoring, groundwater shall not be drawn from any point on the Premises, nor shall it serve as a drinking water supply or be used for any other purpose, nor shall groundwater wells be installed at the Premises, until the USEPA and MADEP provide certification to be recorded at the Registry of Deeds, which certificate describes what uses of the groundwater are permissible;

(3) No excavation below the level of the groundwater may be undertaken on the Premises without advance written approval from the USEPA or the MADEP;

(4) These restrictions shall run with the land;

(5) These restrictions hereby imposed are in gross and are not for the benefit of the appurtenant to any particular land but are for the benefit of and enforceable by the USEPA, its successors and assigns, and MADEP, its successors and assigns;

(6) These restrictions shall be enforceable by the United States and the Commonwealth of Massachusetts, pursuant to the provisions of G.L. c. 184, § 32, or otherwise, or by either one acting singly. Notwithstanding that these restrictions shall be enforceable pursuant to G.L. c. 184, § 32, these restrictions shall also be enforceable by the United States and the Commonwealth of Massachusetts, pursuant to the provisions of

G.L. c. 184, § 26, et seq., or otherwise, or by either one acting singly. A notice of restrictions, in compliance with law, shall be recorded before the expiration of thirty (30) years from the date of this deed and shall name the person or persons appearing of record who own the Premises at the time of recording; and in the case of any such recording, a subsequent notice of restriction shall be recorded within twenty (20) years after the recording of any prior notice of restriction until the period of these restrictions has elapsed. Failure to record the notice of restrictions in accordance with this Paragraph shall not affect the enforceability of these restrictions pursuant to the provisions of G.L. c. 184, § 32. Any grantee hereby covenants for itself, its successors and assigns, to timely execute, and record such documents and take such action, including the surrender of certificate of title, if any, for notation thereon, as shall be necessary to cause such notice of restriction to be effective and enforceable under the then applicable G.L. c. 184, § 26, et seq. Any grantee further covenants for itself, its successors and assigns, to include the restrictions and protective covenants herein set out, in each lease and sublease of the premises or any portion thereof.

No documentary stamps are affixed hereto as none are required by law as this conveyance is made without monetary

consideration.

Executed as a sealed instrument this 16 day of Sept, 1991.

TOWN OF BRIDGEWATER

By Carolyn Morwick
John Colford
Peter C. Riordan

COMMONWEALTH OF MASSACHUSETTS

Plymouth, ss. Sept. 16, 1991

On this 16 day of Sept., 1991, before me appeared the above named Carolyn Morwick, John Colford and Peter C. Riordan, to me personally known, who, being by me duly sworn, did say that they constitute the Board of Selectmen of the Town of Bridgewater, and that said instrument was signed on behalf of the Town of Bridgewater, and said Carolyn Morwick, John Colford and Peter C. Riordan acknowledged said instrument to be the free act and deed of the Town of Bridgewater. Witness my hand and official seal.

Melvyn D. Cohen
Notary Public
My commission expires:

MELVYN D. COHEN NOTARY PUBLIC COMMONWEALTH OF MASS. MY COMMISSION EXPIRES

Pursuant to vote of Special Town Meeting, Town of Bridgewater, held September 16, 1991.

CERTIFICATE OF APPROVAL BY THE SECRETARY

The Secretary of the Executive Office of Environmental Affairs, Commonwealth of Massachusetts, hereby certifies that she approves the foregoing restrictions under G.L. c. 184, § 32.

Secretary, Executive Office of Environmental Affairs, Commonwealth of Massachusetts

ATTACHMENT A

The Premises are restricted to the following uses by private parties:

Table 6.3(D). Office and Laboratory Uses.[1]

1. Business, financial, professional or governmental offices but no retail business, no manufacturing and no processing.

2. Offices and clinics for medical, psychiatric, or other health services for the examination or treatment of persons as outpatient, including only laboratories that are part of such office or clinic.

3. Laboratory or research facility.

4. Radio or television studio.

5. Radio or television transmission facility but not studio.

Table 6.3(E). Retail Business and Consumer Service Establishments.

1. Store serving local retail business needs of residents of vicinity including but not limited to new bakery, grocery, meat market, fruit store, hardware or paint store, florist, news and/or tobacco store, drug store, book store, magazine and periodical store, novelty store, stores providing electronic displays of pictures or movies whether coin operated or otherwise, film store, video tape stores, provided gross floor area of such establishment is under 4,000 sq. ft. and further provided all display, storage and sales of materials are conducted within a building and provided there be no manufacturing or assembly on the premises. In addition, said activity shall not include the conveyance of any material involving subject matter as defined in Sec. 31 of C. 272 MGL, as amended.

2. Store for retail sale of merchandise provided all display storage and sale of materials are conducted within a

---

[1] All references to Table 6.3 throughout this Attachment A refer to Table 6.3 of the Town of Bridgewater Protective Zoning By-Laws, as in effect at the time of the execution of this Declaration of Restrictions.

building and provided there be no manufacturing or assembly on the premises. In addition, said activity shall not include the conveyance of any material involving subject matter as defined in Sec. 31 of C. 272 MGL, as amended.

3. Eating places servicing food and beverages, no dancing or live entertainment permitted.

4. Eating places serving food and beverages.

5. Space for manufacture, assembly, or packaging of consumer goods provided that at least 50% of the merchandise is sold at retail on the premises and that all display, sales and storage is conducted within a building; and further provided that not more than 25% of floor area is devoted to manufacturing, assembly or packaging of consumer goods and that not more than 5 persons are employed at any one time for the manufacturing, assembly or packaging of such goods.

6. Service business servicing local needs, such as barber shops, beauty shops, shoe repair, self-service laundry, or dry cleaning or pick-up agency.

7. Hand laundry, dry cleaning, or tailoring or other similar uses provided personnel is limited to not more than ten (10) persons at any one time on the premises.

8. Mortuary, undertaking or funeral establishments.

9. Veterinary establishment, or similar establishment provided that animals are kept wholly indoors.

10. Store for retail sale of merchandise such as but not limited to lumber yards and building supply yards wherein merchandise is stored in the open, provided that all merchandise so stored is screened from ground level view from any abutting street or abutting property where such materials are stored.

Table 6.3(F). Automotive Service and Open Air Drive-In Retail Service.

1. Gasoline service station.

2. Sale or rental of automobiles, boats and other motor vehicles and accessory storage conducted entirely within an enclosed sound-insulated structure to protect the neighborhood from inappropriate noise and other disturbing effects such as but not limited to flashing, fumes, gases, smoke and vapors.

3. Sale or rental of automobiles, boats and other motor vehicles and accessory storage conducted partly or wholly on open

lots.

4. Automobile repair shops, provided all work is carried out within the building.

5. Car washing establishment.

6. Sales places for flowers, garden supplies, agricultural products partly or wholly outdoors, including commercial greenhouses.

7. (not permitted)

8. Place for exhibition, lettering, or sale of gravestones.

Table 6.3(G). Industrial, Wholesale and Transportation Uses.

1. Laundries and dry cleaning plants.

2. Printing, binding, publishing and related arts and trades.

3. Bottling of beverages.

4. Plumbing, electrical or carpentry shop or other similar service or repair establishments.

5. Place for manufacturing, assembling or packaging of goods, provided that all resulting cinders, dust, flashing, fumes, gases, odors, refuse matter, smoke and vapor be effectively confined to the premises or be disposed of in manner that does not create a nuisance or hazard to safety or health.

6. Wholesale business and storage in a roofed structure.

7. Trucking terminals.

8. Freight terminals.

9. Extractive Industries.

10. Contractor yards.

Town of Bridgewater

Town Clerk
Ronald R. Adams
(508)697-0921

September 17, 1991

Attorney Melvyn D. Cohen
Town Counsel
111 Torrey Street
Brockton, MA. 02401

Dear Attorney Cohen:

At the Special Town Meeting held on Monday, September 16, 1991, the following article was voted.

ARTICLE 1. That the Town authorize the Board of Selectmen to enter into a Declaration of Restrictions with the United States Environmental Protection Agency and the Massachusetts Department of Environmental Protection limiting the use of land and to run with the land on a certain parcel of land owned by the Town of Bridgewater on First Street, and shown as Lot 4 on a Plan entitled, "Bridgewater Industrial Park, a Subdivision of Land in Bridgewater, Mass., owned by Benson Realty Trust, Bridgewater, Mass., Scale 1"=40', dated June 2, 1970, C.A.Pickering Associates, Inc., Consulting Engineers, "recorded with Plymouth County Registry of Deeds, in Plan Book 15, Page 400, (said premises being located within the Cannons Engineering Corporation Superfund Site), said ion of Restrictions to be recorded in the Plymouth Registry of Deeds.

VOTED.

RONALD R. ADAMS
TOWN CLERK

END OF INSTRUMENT

BK10498PG291

Received & Recorded
PLYMOUTH COUNTY
REGISTRY OF DEEDS
26 SEP 1991 09:48AM
JOHN D. PIORDAN
REGISTER

DECLARATION OF RESTRICTIONS

Whereas, Bridgewater Industrial Park, Inc., a corporation duly organized and existing under the laws of Massachusetts, with a usual place of business at 727 Atlantic Avenue, Room 300, Boston, Massachusetts 02111, owns a certain parcel of land situated on First Street, and shown as Lot 3A (the "Premises") on plan entitled "Bridgewater Industrial Park Revised Subdivision of Land in Bridgewater, Mass. owned by Benson Realty Trust dated October 13, 1973 by C.A. Pickering Associates Inc.," recorded with the Plymouth County Registry of Deeds in Plan Book 17, Page 988;

Whereas, a portion of the Premises is located within the Cannons Engineering Corporation Superfund Site (the "Site") in Bridgewater, Massachusetts, which was listed on the National Priority List of hazardous substances sites pursuant to Section 105 of the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), 42 U.S.C. § 9605, on September 8, 1983;

Whereas, the United States Environmental Protection Agency ("USEPA"), in consultation with the Massachusetts Department of Environmental Protection ("MADEP"), has selected and overseen the implementation of remedial action for the Site pursuant to CERCLA; and

Whereas, the USEPA, in consultation with the MADEP, has determined that removal and treatment of contaminated soils at the Site will remove or limit the source of contamination to the groundwater at the Site and that the effects of natural attenuation are expected to reduce contaminants in the groundwater to cleanup target levels in fifteen (15) to twenty (20) years;

NOW, THEREFORE, in order to protect the health, safety and welfare of the inhabitants of the Town of Bridgewater, Bridgewater Industrial Park, Inc. hereby grants the following restrictions to the USEPA, its successors and assigns, and the MADEP, its successors and assigns, which inure to their benefit;

(1) The Premises are hereby restricted to the uses listed in the Town of Bridgewater Protective Zoning By-Laws, in effect at the time of the execution of this Declaration of Restrictions, in Table 6.3(D) [Office and Laboratory Uses], (E) [Retail Business and Consumer Service Establishments], (F) [Automotive Service and Open Air Drive-In Retail Service], and (G)

[Industrial, Wholesale and Transportation Uses], until the USEPA and MADEP provide certification to be recorded in the Registry of Deeds that other uses are permissible (a list of these uses is provided in Attachment A to this Declaration of Restrictions). Notwithstanding the provisions set forth in the preceding sentence, the uses listed in Table 6.3(F)(7) of the current Town of Bridgewater Protective Zoning By-Laws shall not be permitted at the Premises.

(2) Except as authorized by the USEPA and MADEP pursuant to the remedial action selected for the Site which includes longterm groundwater monitoring, groundwater shall not be drawn from any point on the Premises, nor shall it serve as a drinking water supply or be used for any other purpose, nor shall groundwater wells be installed on the Premises, until the USEPA and MADEP provide certification to be recorded at the Registry of Deeds, which certificate describes what uses of the groundwater are permissible;

(3) No excavation below the level of the groundwater may be undertaken on the Premises without advance written approval from the USEPA or the MADEP;

(4) These restrictions shall run with the land;

(5) These restrictions hereby imposed are in gross and are not for the benefit of the appurtenant to any particular land but are for the benefit of and enforceable by the USEPA, its successors and assigns, and MADEP, its successors and assigns;

(6) These restrictions shall be enforceable by the United States and the Commonwealth of Massachusetts, pursuant to the provisions of G.L. c. 184, § 32, or otherwise, or by either one acting singly. Notwithstanding that these restrictions shall be enforceable pursuant to G.L. c. 184, § 32, these restrictions shall also be enforceable by the United States and the Commonwealth of Massachusetts, pursuant to the provisions of G.L. c. 184, § 26, et seq., or otherwise, or by either one acting singly. A notice of restrictions, in compliance with law, shall be recorded before the expiration of thirty (30) years from the date of this deed and shall name the person or persons appearing of record who own the Premises at the time of recording; and in the case of any such recording, a subsequent notice of restriction shall be recorded within twenty (20) years after the recording of any prior notice of restriction until the period of these restrictions has elapsed. Failure to record the notice of restrictions in accordance with this Paragraph shall not effect the enforceability of these restrictions pursuant to the provisions of G.L. c. 184, § 32. Any grantee hereby covenants for itself, its successors and assigns, to timely execute, and record such documents and take such action, including the surrender of certificate of title, if any, for notation thereon,

as shall be necessary to cause such notice of restriction to be effective and enforceable under the then applicable G.L. c. 184, § 26, et seq. Any grantee further covenants for itself, its successors and assigns, to include the restrictions and protective covenants herein set out, in each lease and sublease of the Premises or any portion thereof.

No documentary stamps are affixed hereto as none are required by law as this conveyance is made without monetary consideration.

Executed as a sealed instrument this 23rd day of Sept, 1991.

By Saul L. Ziner
Saul L. Ziner
President
Bridgewater Industrial Park, Inc.

COMMONWEALTH OF MASSACHUSETTS

Plymouth, ss. 9th, 1991

On this 9th day of September 1991, before me appeared Saul L. Ziner, to me personally known, who, being by me duly sworn, did say that he is the President of Bridgewater Industrial Park, Inc., and that said instrument was signed on behalf of Bridgewater Industrial Park, Inc., and said Saul L. Ziner acknowledged said instrument to be the free act and deed of Bridgewater Industrial Park, Inc. Witness my hand and official seal.

Notary Public
My commission expires: 2/27/95

CERTIFICATE OF APPROVAL BY THE SECRETARY

The Secretary of the Executive Office of Environmental Affairs, Commonwealth of Massachusetts, hereby certifies that she approves the foregoing restrictions under G.L. c. 184, § 32.

Secretary, Executive Office of Environmental Affairs,
Commonwealth of Massachusetts

ATTACHMENT A

The Premises are restricted to the following uses:

Table 6.3(D). Office and Laboratory Uses.[1]

1. Business, financial, professional or governmental offices but no retail business, no manufacturing and no processing.

2. Offices and clinics for medical, psychiatric, or other health services for the examination or treatment of persons as outpatient, including only laboratories that are part of such office or clinic.

3. Laboratory or research facility.

4. Radio or television studio.

5. Radio or television transmission facility but not studio.

Table 6.3(E). Retail Business and Consumer Service Establishments.

1. Store serving local retail business needs of residents of vicinity including but not limited to new bakery, grocery, meat market, fruit store, hardware or paint store, florist, news and/or tobacco store, drug store, book store, magazine and periodical store, novelty store, stores providing electronic displays of pictures or movies whether coin operated or otherwise, film store, video tape stores, provided gross floor area of such establishment is under 4,000 sq. ft. and further provided all display, storage and sales of materials are conducted within a building and provided there be no manufacturing or assembly on the premises. In addition, said activity shall not include the conveyance of any material involving subject matter as defined in Sec. 31 of C. 272 MGL, as amended.

2. Store for retail sale of merchandise provided all display storage and sale of materials are conducted within a

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[1] All references to Table 6.3 throughout this Attachment A refer to Table 6.3 of the Town of Bridgewater Protective Zoning By-Laws, as in effect at the time of the execution of this Declaration of Restrictions.

building and provided there be no manufacturing or assembly on the premises. In addition, said activity shall not include the conveyance of any material involving subject matter as defined in Sec. 31 of C. 272 MGL, as amended.

3. Eating places servicing food and beverages, no dancing or live entertainment permitted.

4. Eating places serving food and beverages.

5. Space for manufacture, assembly, or packaging of consumer goods provided that at least 50% of the merchandise is sold at retail on the premises and that all display, sales and storage is conducted within a building; and further provided that not more than 25% of floor area is devoted to manufacturing, assembly or packaging of consumer goods and that not more than 5 persons are employed at any one time for the manufacturing, assembly or packaging of such goods.

6. Service business servicing local needs, such as barber shops, beauty shops, shoe repair, self-service laundry, or dry cleaning or pick-up agency.

7. Hand laundry, dry cleaning, or tailoring or other similar uses provided personnel is limited to not more than ten (10) persons at any one time on the premises.

8. Mortuary, undertaking or funeral establishments.

9. Veterinary establishment, or similar establishment provided that animals are kept wholly indoors.

10. Store for retail sale of merchandise such as but not limited to lumber yards and building supply yards wherein merchandise is stored in the open, provided that all merchandise so stored is screened from ground level view from any abutting street or abutting property where such materials are stored.

Table 6.3(F). Automotive Service and Open Air Drive-In Retail Service.

1. Gasoline service station.

2. Sale or rental of automobiles, boats and other motor vehicles and accessory storage conducted entirely within an enclosed sound-insulated structure to protect the neighborhood from inappropriate noise and other disturbing effects such as but not limited to flashing, fumes, gases, smoke and vapors.

3. Sale or rental of automobiles, boats and other motor vehicles and accessory storage conducted partly or wholly on open

lots.

4. Automobile repair shops, provided all work is carried out within the building.

5. Car washing establishment.

6. Sales places for flowers, garden supplies, agricultural products partly or wholly outdoors, including commercial greenhouses.

7. (not permitted)

8. Place for exhibition, lettering, or sale of gravestones.

Table 6.3(G). Industrial, Wholesale and Transportation Uses.

1. Laundries and dry cleaning plants.

2. Printing, binding, publishing and related arts and trades.

3. Bottling of beverages.

4. Plumbing, electrical or carpentry shop or other similar service or repair establishments.

5. Place for manufacturing, assembling or packaging of goods, provided that all resulting cinders, dust, flashing, fumes, gases, odors, refuse matter, smoke and vapor be effectively confined to the premises or be disposed of in manner that does not create a nuisance or hazard to safety or health.

6. Wholesale business and storage in a roofed structure.

7. Trucking terminals.

8. Freight terminals.

9. Extractive Industries.

10. Contractor yards.

END OF INSTRUMENT

BK15550PG108

106406
Received & Recorded
PLYMOUTH COUNTY
REGISTRY OF DEEDS
10 OCT 1997 09:55AM
JOHN D.RIORDAN
REGISTER
Bk 15550 Pg 108

CERTIFICATION OF ADDITIONAL USES
UNDER DECLARATION OF RESTRICTIONS

WHEREAS, Osterman Propane, Inc., a Connecticut corporation having a principal place of business at 997 Church Street, Northbridge, Massachusetts ("Osterman") has purchased a certain parcel of land as described on Attachment A hereto (the "Premises");

WHEREAS, the Premises, as well as certain adjacent property, is subject to a certain Declaration of Restrictions dated September 16, 1991, recorded with said Registry of Deeds, in Book 10498, Page 281 (the "Declaration");

WHEREAS, the Declaration was established in order to protect the health, safety and welfare of the inhabitants of the Town of Bridgewater and for other purposes, in connection with a remedial action performed at the Premises, selected and overseen by the United States Environmental Protection Agency, a duly constituted agency established under the laws of the United States and having a principal regional office at One Congress Street, Boston, Massachusetts 02203 ("USEPA"), in consultation with the Massachusetts Department of Environmental Protection, a duly constituted agency established under the laws of the Commonwealth of Massachusetts and having a principal office at One Winter Street, Boston, Massachusetts 02108 ("MADEP");

WHEREAS, Osterman desires to conduct a propane gas business at the Premises, including the storing, transporting, distributing, and selling of propane gas and related equipment and appliances (the "Propane Gas Business");

WHEREAS, Osterman desires to install groundwater monitoring wells at the Premises, and to draw groundwater from such wells for the purpose of conducting groundwater monitoring ("Groundwater Monitoring");

WHEREAS, the installation of groundwater monitoring wells at the Premises will require excavation below the level of the groundwater;

WHEREAS, paragraph 1(b) of the Declaration limits the uses and activities permitted on the Premises by private parties; paragraph 2 of the Declaration limits the uses of the groundwater at the Premises to those authorized pursuant to the remedial action selected for the Cannons Engineering Corporation Superfund Site; and paragraph 3 of the Declaration prohibits excavation at the Premises below the level of the groundwater;

WHEREAS, USEPA and MADEP are grantees of certain rights under the Declaration, including in paragraph 1(b) the right to provide certification that other uses of the Premises by private parties are permissible and in paragraph 2 the right to provide certification that other uses of the groundwater at the Premises are permissible, such certifications to be recorded in said Registry of Deeds;

WHEREAS, paragraph 3 of the Declaration provides that excavation at the Premises below the level of the groundwater is permissible only with prior written approval by USEPA and MADEP;

WHEREAS, Osterman has requested pursuant to paragraphs 1(b) and 2 of the Declaration that USEPA and MADEP provide

certifications for the Propane Gas Business uses and activities, and for the Groundwater Monitoring uses and activities; and

WHEREAS, USEPA and MADEP have considered the proposed Propane Gas Business and Groundwater Monitoring uses and activities and have determined that such uses and activities are not inconsistent with the remedial action performed at the Premises, provided that the provisions of the Declaration are otherwise complied with.

NOW THEREFORE, the USEPA and MADEP hereby certify, pursuant to paragraph 1(b) of the Declaration, that the list of uses by private parties to which the Premises are restricted, set forth therein, does and shall hereby include the storing, transporting, distributing, and selling of propane gas and related equipment and appliances.

The USEPA and MADEP hereby further certify, pursuant to paragraph 2 of the Declaration, that the installation of groundwater wells at the Premises and the drawing of groundwater from such wells for the purpose of conducting groundwater monitoring is a permissible use of the Premises and the groundwater at the Premises, and approves, pursuant to paragraph 3 of the Declaration, any associated excavation below the level of the groundwater; provided that a plan for such excavation, installation of groundwater wells, and groundwater monitoring is first submitted to and approved in writing by the USEPA and MADEP.

All other provisions of the Declaration, including, without

limitation, the restrictions pertaining to the use of groundwater, excavation below the level of groundwater, and all other uses and activities at the Premises, shall continue in full force and effect, and are not altered by this certification.

This certification is solely a determination of uses and activities permitted under the Declaration and shall have no effect on the applicability of (1) any zoning ordinances of the Town of Bridgewater to the proposed Propane Gas Business uses and activities, or (2) any requirements of federal, State or local laws, regulations or other ordinances applicable to the proposed Propane Gas Business or Groundwater Monitoring uses and activities.

This certification shall be effective upon recording at the Plymouth County Registry of Deeds.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

By: _____, 7/7/97
John P. DeVillars Date
Regional Administrator, Region I

In accordance with M.G.L. c. 21E, § 6, as amended, the Commissioner of the Massachusetts Department of Environmental Protection hereby approves this certification.

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

By: _____, 6/23/97
David B. Struhs Date
Commissioner

COMMONWEALTH OF MASSACHUSETTS

Suffolk, SS. 7/22, 1997

Then personally appeared the above-named John P. DeVillars, as Regional Administrator, Region I of the United States Environmental Protection Agency, and acknowledged the foregoing instrument to be his free act and deed, before me:

WANDA I. RIVERA
Notary Public
My Comm. Expires Oct. 9, 2003

Wanda I. Rivera
Notary Public
My Commission Expires:

COMMONWEALTH OF MASSACHUSETTS

Suffolk, SS. 6/23, 1997

Then personally appeared the above-named David B. Struhs, as Commissioner of the Massachusetts Department of Environmental Protection, and acknowledged the foregoing instrument to be his free act and deed, before me:

Elizabeth B. Kimball
Notary Public
My Commission Expires:

ELIZABETH B. KIMBALL
Notary Public
My Commission Expires May 3, 2002

5-3-2002

ATTACHMENT A

That certain parcel of land located in the Town of Bridgewater, County of Plymouth, Massachusetts, being shown as "Lot 4A" on a plan of land entitled "Land Acquisition Plan Town of Bridgewater, Plymouth County", dated May 13, 1996, prepared by Joseph J. Tauper and recorded with the Plymouth County Registry of Deeds, Plan Book 39, Page 236, being bounded and described according to said Plan as follows:

NORTHEASTERLY by First Street, 200 feet;

SOUTHWESTERLY by Parcel A shown on said Plan, 522.17 feet;

NORTHWESTERLY by Parcel A shown on said Plan, 180.81 feet; and

NORTHEASTERLY by land shown on said Plan as "N./F. Marie, Trustee of Mackenzie Realty Trust", 436.68 feet;

Containing according to said Plan, 1.99 acres of land.

Being a portion of the premises taken by the Town of Bridgewater as evidenced by a certain Final Decree dated December 28, 1983 (Land Court Case No. 65470) recorded with said Deeds in Book 5585, Page 85.

END OF INSTRUMENT

APPENDIX F

DATA FROM 2004 THROUGH 2009

Table 3
Summary of Groundwater Analytical Data
Volatile Organic Compounds

Cannons Bridgewater-Year 15 Monitoring Event

	Sample Location:			MW1	MW3	MW4A	MW4B	MW5	MW6A	MW6C	MW7	MW8	MW11	MW12	MW13A	MW13B	MW14	MW15A
	Date Sampled:			9/16/2005	9/14/2005	9/14/2005	9/14/2005	9/14/2005	9/15/2005	9/15/2005	9/16/2005	9/15/2005	9/16/2005	9/14/2005	9/14/2005	9/14/2005	9/14/2005	9/14/2005
Analyte	Method	Units	MCL															
VOLATILE ORGANIC COMPOUNDS	524.2	ug/L	ug/l															
Dichlorodifluoromethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.22 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl Chloride			2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.27 J	0.5 U	0.81	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Diethyl Ether				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.28 J	0.5 U	0.5 U
1,1-Dichloroethene			7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Acetone				5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	2 J	5 U	5 U	5 U	5 U	5 U
Methyl Iodide				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Disulfide				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Allyl Chloride				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylene Chloride				0.41 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Acrylonitrile				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene			100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl-t-Butyl Ether				0.5 U	1.2	0.5 U	0.5 U	0.5 U	1.1	2	1.1	8.8	5.8	0.5 U	0.25 J	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane				0.5 U	0.5 U	0.33 J	0.5 U	0.21 J	0.5 U	0.5 U	0.5 U	1.3	0.7	0.33 J	0.4 J	0.34 J	0.5 U	0.5 U
2,2-Dichloropropane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,2-Dichloroethene			70	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.27 J	0.5 U	1	0.3 J	0.51	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone				5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Propionitrile				25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Methyl Acrylate				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methacrylonitrile				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrahydrofuran				2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Chloroform				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane			200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1-Chlorobutane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Tetrachloride				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane			5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.6	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene			5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 J	0.5 U	0.79	0.32 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane			5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl Methacrylate				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroacetonitrile				25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
cis-1,3-Dichloropropene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropanone				10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone				2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
2-Nitropropane				10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Toluene			100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethyl Methacrylate				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane			5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene			5	5.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.36 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Hexanone				2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Dibromochloromethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromoethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene			100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.37 J	0.54	0.78	0.5 U	0.5 U	0.5 U	0.5 U	0.27 J	0.5 U	0.5 U
1,1,1,2-Tetrachloroethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene			700	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
m- & p-Xylene			10	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene			10	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Xylene (total)				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Isopropylbenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,4-Dichloro-2-butene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Chlorotoluene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-Chlorotoluene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Propylbenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Pentachloroethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Isopropyltoluene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Total VOCs				**6.21**	**1.2**	**0.33**	**0**	**0.21**	**1.47**	**3.57**	**1.88**	**12.16**	**9.34**	**3.25**	**0.65**	**0.89**	**0**	**0**

General Notes:
1."U" = Analyte not detected at a concentration above the specified laboratory reporting limit.
2.ug/L = micrograms per liter
3.MCL=Maximum Contaminant Level. MCL for Xylenes applies to total xylenes.

Qualifying Notes:
J indicates the result is estimated.
E indicates the result exceeds the calibration range.

Table 3
Summary of Groundwater Analytical Data
Volatile Organic Compounds

Cannons Bridgewater-Year 15 Monitoring Event

	Sample Location:			MW15B	MW15C	MW16A	MW16B	MW17A	MW17B	MW18A	MW18B	MW18C	EFF
	Date Sampled:			9/14/2005	9/14/2005	9/15/2005	9/15/2005	9/16/2005	9/15/2005	9/16/2005	9/15/2005	9/15/2005	9/15/2005
Analyte	Method	Units	MCL										
VOLATILE ORGANIC COMPOUNDS	524.2	ug/L	ug/l										
Dichlorodifluoromethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Chloromethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Vinyl Chloride			2	0.5 U	0.32 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3.1	0.5 UJ
Bromomethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Chloroethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Trichlorofluoromethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Diethyl Ether				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
1,1-Dichloroethene			7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Acetone				5 U	5 U	5 U	2.4 J	5 U	5 U	5 U	5 U	5 U	4 J
Methyl Iodide				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Disulfide				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Allyl Chloride				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylene Chloride				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Acrylonitrile				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
trans-1,2-Dichloroethene			100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Methyl-t-Butyl Ether				0.5 U	0.5 U	15	4.9	0.5 U	0.21 J	7.1	8.8	17	2.6 J
1,1-Dichloroethane				0.5 U	0.5 U	0.33 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
2,2-Dichloropropane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
cis-1,2-Dichloroethene			70	0.44 J	1.8	0.26 J	0.5 U	0.34 J	1	0.5 U	0.5 U	9.6	0.5 UJ
2-Butanone				5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
Propionitrile				25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 UJ
Methyl Acrylate				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Bromochloromethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Methacrylonitrile				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Tetrahydrofuran				2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	39 J
Chloroform				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
1,1,1-Trichloroethane			200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
1-Chlorobutane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Carbon Tetrachloride				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
1,1-Dichloropropene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Benzene				0.5 U	0.24 J	0.5 U	0.5 U	0.5 U	0.38 J	0.5 U	0.5 U	0.5 U	0.5 UJ
1,2-Dichloroethane			5	0.29 J	1.5	0.5 U	0.5 U	0.5 U	0.24 J	0.5 U	0.5 U	0.5 U	0.5 UJ
Trichloroethene			5	0.5 U	0.5	0.23 J	0.5 U	0.5	1.5	0.21 J	0.5 U	2.3	0.5 UJ
Dibromomethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
1,2-Dichloropropane			5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Methyl Methacrylate				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Bromodichloromethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Chloroacetonitrile				25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 UJ
cis-1,3-Dichloropropene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
1,1-Dichloropropanone				10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ
4-Methyl-2-Pentanone				2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 UJ
2-Nitropropane				10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ
Toluene			100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
trans-1,3-Dichloropropene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Ethyl Methacrylate				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
1,1,2-Trichloroethane			5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Tetrachloroethene			5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.25 J	0.5 U	0.5 U	0.33 J	0.5 UJ
1,3-Dichloropropane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
2-Hexanone				2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 UJ
Dibromochloromethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
1,2-Dibromoethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Chlorobenzene			100	0.5 U	0.5 U	0.5 U	0.5 U	4	72 E	0.5 U	0.5 U	0.32 J	0.5 UJ
1,1,1,2-Tetrachloroethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Ethylbenzene			700	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
m- & p-Xylene			10	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
o-Xylene			10	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Styrene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Bromoform				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Xylene (total)				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Isopropylbenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Bromobenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
1,1,2,2-Tetrachloroethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
1,2,3-Trichloropropane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
trans-1,4-Dichloro-2-butene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
2-Chlorotoluene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
4-Chlorotoluene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
n-Propylbenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
1,3,5-Trimethylbenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Pentachloroethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
tert-Butylbenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
1,2,4-Trimethylbenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
sec-Butylbenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
1,3-Dichlorobenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
p-Isopropyltoluene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
1,4-Dichlorobenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
1,2-Dichlorobenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.27 J	1.2	0.5 U	0.5 U	0.5 U	0.5 UJ
Total VOCs				**0.73**	**4.36**	**15.82**	**7.3**	**5.11**	**76.78**	**7.31**	**8.8**	**32.65**	**45.6**

General Notes:
1."U" = Analyte not detected at a concentration above the specified laboratory reporting limit.
2.ug/L = micrograms per liter
3.MCL=Maximum Contaminant Level. MCL for Xylenes applies to total xylenes.

Qualifying Notes:
J indicates the result is estimated.
E indicates the result exceeds the calibration range.

Table 3
Summary of Groundwater Analytical Data
Volatile Organic Compounds

Cannons Bridgewater-Year 16 Monitoring Event

Sample Location:				MW-1	MW-3	MW-4A	MW-4B	MW-5	MW-6A	MW-6C	MW-7	MW-8	MW-11	MW-12	MW-13A	MW-13B	MW-14	MW-15A	MW-15B	MW-15C
Date Sampled:				9/13/2006	9/13/2006	9/13/2006	9/13/2006	9/14/2006	9/12/2006	9/12/2006	9/13/2006	9/13/2006	9/13/2006	9/14/2006	9/14/2006	9/14/2006	9/14/2006	9/14/2006	9/14/2006	9/14/2006
Analyte	Method	Units	MCL																	
VOLATILE ORGANIC COMPOUNDS	524.2	ug/L	ug/l																	
Dichlorodifluoromethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl Chloride			2	0.5 U	0.5 U	0.5 U	0.5 U	0.26 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.78	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.3 J
Bromomethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Diethyl Ether				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene			7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Acetone				5 U	5 U	5 U	1.8 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Methyl Iodide				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Disulfide				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Allyl Chloride				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylene Chloride				4.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Acrylonitrile				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene			100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl-t-Butyl Ether				0.7	0.6	0.21 J	0.5 U	0.5 U	0.59	1.2	0.51	11	8.9	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane				0.5 U	0.5 U	0.38 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.96	0.81	0.5 U	0.58	0.31 J	0.5 U	0.5 U	0.21 J	0.5 U
2,2-Dichloropropane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,2-Dichloroethene			70	0.5 U	0.5 U	0.5 U	0.5 U	0.38 J	0.5 U	0.21 J	0.5 U	0.53	0.36 J	0.53	0.5 U	0.5 U	0.5 U	0.5 U	1.3	2.3
2-Butanone				5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Propionitrile				25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Methyl Acrylate				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methacrylonitrile				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrahydrofuran				2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Chloroform				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane			200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1-Chlorobutane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Tetrachloride				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.25 J
1,2-Dichloroethane			5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.98	0.28 J	0.5 U	0.5 U	0.5 U	0.82	1.6
Trichloroethene			5	0.5 U	0.3 J	0.5 U	0.5 U	0.5 U	0.3 J	0.45 J	3.2	0.42 J	0.41 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.44 J	0.87
Dibromomethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane			5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl Methacrylate				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroacetonitrile				25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
cis-1,3-Dichloropropene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropanone				10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone				2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
2-Nitropropane				10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Toluene			100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethyl Methacrylate				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane			5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene			5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.26 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.36 J
1,3-Dichloropropane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Hexanone				2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Dibromochloromethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromoethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene			100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.56	0.33 J	0.5 U	0.26 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.38 J
1,1,1,2-Tetrachloroethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene			700	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
m- & p-Xylene			10	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene			10	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Xylene (total)				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Isopropylbenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,4-Dichloro-2-butene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Chlorotoluene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-Chlorotoluene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Propylbenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Pentachloroethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Isopropyltoluene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Butylbenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachloroethane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-Chloropropane				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Nitrobenzene				25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
1,2,4-Trichlorobenzene			70	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Naphthalene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Total VOCs				5.5	0.3	0.59	1.8	0.64	0.89	2.68	4.04	12.91	10.74	2.29	0.86	0.31	0	0	2.77	6.06

General Notes:
1."U" = Analyte not detected at a concentration above the specified laboratory reporting limit.
2.ug/L = micrograms per liter
3.MCL=Maximum Contaminant Level. MCL for Xylenes applies to total xylenes.

Qualifying Notes:
J indicates the result is estimated.
E indicates the result exceeds the calibration range.

Table 3
Summary of Groundwater Analytical Data
Volatile Organic Compounds 16

Cannons Bridgewater-Year 16 Monitoring Event

Sample Location:				MW-16A	MW-16B	MW-17A	MW-17B	MW-17B (Dilution)	MW-18A	MW-18B	MW-18B (Diluted)	MW-18C	EFF
Date Sampled:				9/12/2006	9/12/2006	9/13/2006	9/12/2006	9/12/2006	9/13/2006	9/12/2006	9/12/2006	9/12/2006	9/13/2006
Analyte	Method	Units	MCL										
VOLATILE ORGANIC COMPOUNDS	524.2	ug/L	ug/l										
Dichlorodifluoromethane				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Chloromethane				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Vinyl Chloride			2	0.5 U	0.5 U	0.5 U	0.23 J	0.9 U	0.5 U	7.4	7.2 D	0.5 U	4.4 U
Bromomethane				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Chloroethane				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Trichlorofluoromethane				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Diethyl Ether				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
1,1-Dichloroethene			7	0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Acetone				5 U	5 U	5 U	5 U	9 U	5 U	5 U	40 U	5 U	44 U
Methyl Iodide				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Carbon Disulfide				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Allyl Chloride				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Methylene Chloride				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Acrylonitrile				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
trans-1,2-Dichloroethene			100	0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	1.6	1.7 DJ	0.5 U	4.4 U
Methyl-t-Butyl Ether				8	15	0.5 U	0.5 U	0.9 U	2.2	4.8	4.9 D	3.3	4.4 U
1,1-Dichloroethane				0.34 J	0.35 J	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
2,2-Dichloropropane				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
cis-1,2-Dichloroethene			70	0.5 U	0.5 U	0.45 J	0.9	0.78 DJ	0.34 J	160 E	150 D	0.3 J	4.4 U
2-Butanone				5 U	5 U	5 U	5 U	9 U	5 U	5 U	40 U	5 U	44 U
Propionitrile				25 U	25 U	25 U	25 U	45 U	25 U	25 U	200 U	25 U	220 U
Methyl Acrylate				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Bromochloromethane				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Methacrylonitrile				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Tetrahydrofuran				2.5 U	2.5 U	2.5 U	2.5 U	4.5 U	2.5 U	2.5 U	20 U	2.5 U	22 U
Chloroform				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
1,1,1-Trichloroethane			200	0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
1-Chlorobutane				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Carbon Tetrachloride				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
1,1-Dichloropropene				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Benzene				0.5 U	0.5 U	0.5 U	0.38 J	0.4 DJ	0.5 U	0.5 U	4 U	0.5 U	4.4 U
1,2-Dichloroethane			5	0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Trichloroethene			5	0.27 J	0.5 U	0.76	1.2	1.1 D	2.7	24	23 D	1.7	4.4 U
Dibromomethane				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
1,2-Dichloropropane			5	0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Methyl Methacrylate				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Bromodichloromethane				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Chloroacetonitrile				25 U	25 U	25 U	25 U	45 U	25 U	25 U	200 U	25 U	220 U
cis-1,3-Dichloropropene				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
1,1-Dichloropropanone				10 U	10 U	10 U	10 U	18 U	10 U	10 U	80 U	10 U	88 U
4-Methyl-2-Pentanone				2.5 U	2.5 U	2.5 U	2.5 U	4.5 U	2.5 U	2.5 U	20 U	2.5 U	22 U
2-Nitropropane				10 U	10 U	10 U	10 U	18 U	10 U	10 U	80 U	10 U	88 U
Toluene			100	0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
trans-1,3-Dichloropropene				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Ethyl Methacrylate				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
1,1,2-Trichloroethane			5	0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Tetrachloroethene			5	0.5 U	0.5 U	0.2 J	0.25 J	0.9 U	0.5 U	18	22 D	0.5 U	4.4 U
1,3-Dichloropropane				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
2-Hexanone				2.5 U	2.5 U	2.5 U	2.5 U	4.5 U	2.5 U	2.5 U	20 U	2.5 U	22 U
Dibromochloromethane				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
1,2-Dibromoethane				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Chlorobenzene			100	0.5 U	0.5 U	17	48 E	46 D	0.5 U	0.53	4 U	0.5 U	4.4 U
1,1,1,2-Tetrachloroethane				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Ethylbenzene			700	0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
m- & p-Xylene			10	0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
o-Xylene			10	0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Styrene				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Bromoform				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Xylene (total)				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Isopropylbenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Bromobenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
1,1,2,2-Tetrachloroethane				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
1,2,3-Trichloropropane				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
trans-1,4-Dichloro-2-butene				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
2-Chlorotoluene				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
4-Chlorotoluene				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
n-Propylbenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
1,3,5-Trimethylbenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Pentachloroethane				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
tert-Butylbenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
1,2,4-Trimethylbenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
sec-Butylbenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
1,3-Dichlorobenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
p-Isopropyltoluene				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
1,4-Dichlorobenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
1,2-Dichlorobenzene				0.5 U	0.5 U	0.53	1.1	0.93 D	0.5 U	0.5 U	4 U	0.5 U	4.4 U
n-Butylbenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Hexachloroethane				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
1,2-Dibromo-3-Chloropropane				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Nitrobenzene				25 U	25 U	25 U	25 U	45 U	25 U	25 U	200 U	25 U	220 U
1,2,4-Trichlorobenzene			70	0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Hexachlorobutadiene				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Naphthalene				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
1,2,3-Trichlorobenzene				0.5 U	0.5 U	0.5 U	0.5 U	0.9 U	0.5 U	0.5 U	4 U	0.5 U	4.4 U
Total VOCs				**8.61**	**15.35**	**18.94**	**52.06**	**49.21**	**5.24**	**216.33**	**248.8**	**5.3**	**0**

General Notes:
1."U" = Analyte not detected at a concentration above the specified laboratory reporting limit.
2.ug/L = micrograms per liter
3.MCL=Maximum Contaminant Level. MCL for Xylenes applies to total xylenes.

Qualifying Notes:
J indicates the result is estimated.
E indicates the result exceeds the calibration range.

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Table 3
Summary of Groundwater Analytical Data
Volatile Organic Compounds

Cannons Bridgewater-Year 17 Monitoring Event

Sample Location: / Date Sampled:	MCL (µg/L)	MW1 9/20/2007	MW3 9/20/2007	MW4A 9/20/2007	MW4B 9/20/2007	MW5 9/21/2007	MW6C 9/19/2007	MW7 9/20/2007	MW8 9/20/2007	MW11 9/20/2007	MW12 9/21/2007	MW13A 9/21/2007	MW13B 9/21/2007	MW14 9/21/2007	MW15A 9/21/2007	MW15B 9/21/2007	MW15C 9/21/2007	MW16A 9/19/2007	MW16B 9/19/2007
ANALYTE																			
Ethylbenzene	700	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Propylbenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Butylbenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-Chlorotoluene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromoethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Allyl Chloride		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	1.1	0.5 U	0.5 U
Propionitrile		25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Acrylonitrile		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroacetonitrile		25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
4-Methyl-2-Pentanone		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,3,5-Trimethylbenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.57	0.7	0.5 U	0.23 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1-Chlorobutane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrahydrofuran		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
trans-1,4-Dichloro-2-butene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	70	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromochloromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methacrylonitrile		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.31 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5 U
Xylene (total)	10	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
m- & p-Xylene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,2-Dichloroethene	70	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.26 J	0.5 U	0.87	0.27 J	0.51	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.36 J	1.3	0.5 U
trans-1,2-Dichloroethene	100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl-t-Butyl Ether		0.87	0.49 J	0.39 J	0.41 J	0.5 U	0.73	0.43 J	9.2	6.1	0.5 U	0.22 J	0.2 J	0.3 J	0.5 U	0.5 U	0.5 U	4	9.9
1,1-Dichloropropanone		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Tetrachloride		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Hexanone		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
2,2-Dichloropropane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Diethyl Ether		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.36 J	0.5 U	0.21 J	0.23 J	0.29 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1,2-Tetrachloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Acetone		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.21 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5 U	0.5 U
1,1,1-Trichloroethane	200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl Iodide		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl Chloride	2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.23 J	0.5 U	0.5 U
Methylene Chloride		1.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Disulfide		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane		0.5 U	0.5 U	0.34 J	0.21 J	0.22 J	0.5 U	0.5 U	0.97	0.46 J	0.29 J	0.29 J	0.3 J	0.5 U	0.5 U	0.5 U	0.5 U	0.32 J	0.36 J
1,1-Dichloroethene	7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Pentachloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	5	0.5 U	0.34 J	0.5 U	0.5 U	0.5 U	0.84	1	0.62	0.27 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 J	0.29 J	0.5 U
1,1,2,2-Tetrachloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Nitropropane		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methyl Methacrylate		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Naphthalene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	10	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Chlorotoluene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-Chloropropane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl Acrylate		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethyl Methacrylate		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Isopropylbenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Nitrobenzene		25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
p-Isopropyltoluene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Total VOCs		**2.47**	**0.83**	**0.73**	**0.62**	**0.22**	**2.71**	**2.13**	**12.02**	**7.33**	**4.32**	**0.74**	**0.79**	**0.3**	**0**	**0.56**	**3.23**	**4.81**	**10.26**

General Notes:
1. All samples were analyzed for total Volatile Organic Compounds (VOCs) via EPA Method 524.2 and all laboratory data is presented in micrograms per liter (µg/L)
2. µg/L= Micrograms per liter
3. MCL= Maximum Contaminant Level allowed in groundwater by the USEPA's National Primary Drinking Water Standards (NPDWS, 40 CFR, Parts 141, 142, and 143)
4. MCL for Xylenes applies to total xylenes.
5. J= Laboratory qualifier indicating the result is estimated.
6. U= Analyte not detected at a concentration above the specified laboratory reporting limit.
7. MW17A was incorrectly labled on the laboratory chain of custody as MW-7A.
8. Bold values indicate concentrations reported by the laboratory.

Table 3
Summary of Groundwater Analytical Data
Volatile Organic Compounds

Cannons Bridgewater-Year 17 Monitoring Event

	Sample Location:	MW17A	MW17B	MW18A	MW18B	MW18C	EFF
	Date Sampled:	9/20/2007	9/19/2007	9/19/2007	9/19/2007	9/19/2007	9/19/2007
ANALYTE	MCL (µg/L)						
Ethylbenzene	700	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Propylbenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Butylbenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-Chlorotoluene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromoethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Allyl Chloride		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	5	0.5 U	0.22 J	0.5 U	0.5 U	0.5 U	0.5 U
Propionitrile		25 U	25 U	25 U	25 U	25 U	25 U
Acrylonitrile		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroacetonitrile		25 U	25 U	25 U	25 U	25 U	25 U
4-Methyl-2-Pentanone		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,3,5-Trimethylbenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	100	2.2	23	0.5 U	0.5 U	0.3 J	0.5 U
1-Chlorobutane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrahydrofuran		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
trans-1,4-Dichloro-2-butene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	70	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromochloromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methacrylonitrile		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	5	0.5 U	0.24 J	0.5 U	0.5 U	0.54	0.5 U
Xylene (total)	10	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
m- & p-Xylene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,2-Dichloroethene	70	0.3 J	0.83	0.5 U	0.5 U	4.5	0.5 U
trans-1,2-Dichloroethene	100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl-t-Butyl Ether		0.5 U	0.5 U	1 U	1.2	1.9	0.76
1,1-Dichloropropanone		10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Tetrachloride		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Hexanone		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
2,2-Dichloropropane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Diethyl Ether		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1,2-Tetrachloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Acetone		2.2 J	5 U	5 U	5 U	5 U	5 U
Chloroform		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene		0.5 U	0.41 J	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl Iodide		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl Chloride	2	0.5 U	0.3 J	0.5 U	0.5 U	1.7	0.5 U
Methylene Chloride		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Disulfide		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Pentachloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone		5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	5	0.44 J	1.3	0.78	0.73	0.61	0.5 U
1,1,2,2-Tetrachloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Nitropropane		10 U	10 U	10 U	10 U	10 U	10 U
Methyl Methacrylate		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Naphthalene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	10	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Chlorotoluene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene		0.2 J	0.87	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-Chloropropane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl Acrylate		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethyl Methacrylate		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Isopropylbenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Nitrobenzene		25 U	25 U	25 U	25 U	25 U	25 U
p-Isopropyltoluene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Total VOCs		**5.34**	**27.17**	**1.78**	**1.93**	**9.55**	**0.76**

General Notes:
1. All samples were analyzed for total Volatile Organic Compounds (VOCs) via EPA Method 524.2 and all laboratory data is presented in micrograms per liter (µg/L)
2. µg/L= Micrograms per liter
3. MCL= Maximum Contaminant Level allowed in groundwater by the USEPA's National Primary Drinking Water Standards (NPDWS, 40 CFR, Parts 141, 142, and 143)
4. MCL for Xylenes applies to total xylenes.
5. J= Laboratory qualifier indicating the result is estimated.
6. U= Analyte not detected at a concentration above the specified laboratory reporting limit.
7. MW17A was incorrectly labled on the laboratory chain of custody as MW-7A.
8. **Bold** values indicate concentrations exceeding or estimated as exceeding laboratory reporting limit.

Table 4
Summary of Groundwater Analytical Data - Volatile Organic Compounds
Year 18 Report Cannons Engineering Superfund Site
Bridgewater, Massachusetts

Draft

Parameter	Sample Location: / Date Sampled: / MCL (ug/L)	MW1 9/19/2008	MW3 9/19/2008	MW4A 9/19/2008	MW4B 9/19/2008	MW5 9/19/2008	MW6A 9/18/2008	MW6C 9/18/2008	MW7 9/19/2008	MW8 9/18/2008	MW12 9/19/2008	MW13A 9/19/2008	MW13B 9/19/2008	MW14 9/19/2008	MW15A 9/19/2008	MW15B 9/19/2008	MW15C 9/19/2008	MW16A 9/18/2008	MW16B 9/18/2008	MW17A 9/18/2008	MW17B 9/18/2008	MW18A 9/18/2008	MW18B 9/18/2008	MW18C 9/18/2008
Ethylbenzene	700	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Propylbenzene	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Butylbenzene	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-Chlorotoluene	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromoethane	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Allyl Chloride	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	5	0.5 U	0.5 U	0.5 U	0.5 U	**0.21 J**	0.5 U	0.5 U	0.5 U	0.5 U	**0.89**	0.5 U	0.5 U	0.5 U	0.5 U	**0.34 J**	**1.2**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Propionitrile	–	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Acrylonitrile	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroacctonitrile	–	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
4-Methyl-2-Pentanone	–	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,3,5-Trimethylbenzene	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.56**	**0.51**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.25 J**	0.5 U	0.5 U	**0.67**	**11**	0.5 U	0.5 U	**0.38 J**
1-Chlorobutane	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrahydrofuran	–	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
trans-1,4-Dichloro-2-butene	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	70	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromochloromethane	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methacrylonitrile	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	5	**0.34 J**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.32 J**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.25 J**	**0.25 J**	0.5 U	0.5 U	**0.26 J**	0.5 U	0.5 U	**0.26 J**
Xylene (total)	10	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
m- & p-Xylene	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1.2-Dichloroethene	70	0.5 U	0.5 U	0.5 U	0.5 U	**0.43 J**	0.5 U	**0.31 J**	0.5 U	**0.29 J**	**0.53**	0.5 U	0.5 U	0.5 U	0.5 U	**0.45 J**	**1.7**	**0.26 J**	0.5 U	**0.27 J**	**0.83**	0.5 U	0.5 U	**3.9**
trans-1,2-Dichloroethene	100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl-t-Butyl Ether	–	**0.54**	**0.26 J**	**0.59**	0.5 U	0.5 U	**0.6**	**0.6**	**0.28 J**	**2.6**	0.5 U	0.5 U	0.5 U	**0.21 J**	0.5 U	0.5 U	0.5 U	**3.1**	**6.1**	0.5 U	0.5 U	**0.64**	**0.55**	**0.6**
1,1-Dichloropropanone	–	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Tetrachloride	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Hexanone	–	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
2,2-Dichloropropane	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Diethyl Ether	–	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.24 J**	**0.29 J**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Table 4
Summary of Groundwater Analytical Data - Volatile Organic Compounds
Year 18 Report Cannons Engineering Superfund Site
Bridgewater, Massachusetts

Draft

Parameter	Sample Location: / Date Sampled: / MCL (ug/L)	MW1 9/19/2008	MW3 9/19/2008	MW4A 9/19/2008	MW4B 9/19/2008	MW5 9/19/2008	MW6A 9/18/2008	MW6C 9/18/2008	MW7 9/19/2008	MW8 9/18/2008	MW12 9/19/2008	MW13A 9/19/2008	MW13B 9/19/2008	MW14 9/19/2008	MW15A 9/19/2008	MW15B 9/19/2008	MW15C 9/19/2008	MW16A 9/18/2008	MW16B 9/18/2008	MW17A 9/18/2008	MW17B 9/18/2008	MW18A 9/18/2008	MW18B 9/18/2008	MW18C 9/18/2008
1,1,1,2-Tetrachloroethane	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Acetone	--	5 U	5 U	**2.8 J**	**9.4**	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachloroethane	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.21 J**	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	--	**0.25 J**	**0.23 J**	**0.23 J**	**0.29 J**	0.5 U	**0.27 J**	0.5 U	**0.24 J**	0.5 U	**0.37 J**	**0.43 J**	**0.26 J**	0.5 U	**0.25 J**	**0.46 J**	**0.58**	**0.29 J**	0.5 U	**0.37 J**	0.5 U	**0.23 J**	0.5 U	0.5 U
Methyl Iodide	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl Chloride	2	0.5 U	0.5 U	0.5 U	0.5 U	**0.31 J**	0.5 U	0.5 U	0.5 U	0.5 U	**0.72**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.28 J**	0.5 U	0.5 U	0.5 U	**0.22 J**	0.5 U	0.5 U	**1.7**
Methylene Chloride	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Disulfide	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	--	0.5 U	0.5 U	**0.39 J**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.33 J**	**0.26 J**	**0.23 J**	**0.28 J**	0.5 U	0.5 U	0.5 U	0.5 U	**0.29 J**	**0.28 J**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Pentachloroethane	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone	--	5 U	5 U	5 U	**2.2 J**	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.6**	**0.31 J**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.58**	**0.31 J**	0.5 U	**0.36 J**	**1.2**	**0.3 J**	**0.31 J**	**0.45 J**
1,1,2,2-Tetrachloroethane	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Nitropropane	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methyl Methacrylate	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Naphthalene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	10	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Chlorotoluene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.76**	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-Chloropropane	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl Acrylate	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethyl Methacrylate	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Table 4
Summary of Groundwater Analytical Data - Volatile Organic Compounds
Year 18 Report Cannons Engineering Superfund Site
Bridgewater, Massachusetts

Parameter	Sample Location: / Date Sampled: / MCL (ug/L)	MW1 9/19/2008	MW3 9/19/2008	MW4A 9/19/2008	MW4B 9/19/2008	MW5 9/19/2008	MW6A 9/18/2008	MW6C 9/18/2008	MW7 9/19/2008	MW8 9/18/2008	MW12 9/19/2008	MW13A 9/19/2008	MW13B 9/19/2008	MW14 9/19/2008	MW15A 9/19/2008	MW15B 9/19/2008	MW15C 9/19/2008	MW16A 9/18/2008	MW16B 9/18/2008	MW17A 9/18/2008	MW17B 9/18/2008	MW18A 9/18/2008	MW18B 9/18/2008	MW18C 9/18/2008
tert-Butylbenzene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Isopropylbenzene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Nitrobenzene	--	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
p-Isopropyltoluene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Total VOCs	--	**1.13**	**0.49**	**4.01**	**11.89**	**0.95**	**0.87**	**2.39**	**1.34**	**3.22**	**2.77**	**0.9**	**0.83**	**0.21**	**0.25**	**1.25**	**4.84**	**4.5**	**6.38**	**1.67**	**14.48**	**1.17**	**0.86**	**7.29**

General Notes:
1. All samples were analyzed for total Volatile Organic Compounds (VOCs) via EPA Method 524.2 and all laboratory data is presented in µg/L
2. µg/L= Micrograms per liter
3. MCL= Maximum Contaminant Level allowed in groundwater by the USEPA's National Primary Drinking Water Standards (NPDWS, 40 CFR, Parts 141, 142, and 143)
4. MCL for Xylenes applies to total xylenes.
5. J= Laboratory qualifier indicating the result is estimated.
6. U= Analyte(s) not detected at a concentration above the specified laboratory reporting limit.
8. **Bold** values indicate concentrations reported by the laboratory.

Table 4
Summary of Groundwater Analytical Data - Volatile Organic Compounds
Year 19 Report Cannons Engineering Superfund Site
Bridgewater, Massachusetts

Draft

Parameter	MCL µg/L	MW-1 9/17/2009	MW-3 9/17/2009	MW-4A 9/17/2009	MW-4B 9/17/2009	MW-5 9/17/2009	MW-6A 9/17/2009	MW-6C 9/16/2009	MW-7 9/17/2009	MW-8 9/17/2009	MW-11 9/17/2009	MW-12 9/17/2009	MW-13A 9/17/2009	MW-13B 9/17/2009	MW-14 9/17/2009	MW-15A 9/17/2009	MW-15B 9/17/2009	MW-15C 9/17/2009	MW-16A 9/16/2009	MW-16B 9/16/2009	MW-17A 9/16/2009	MW-17B 9/16/2009	MW-18A 9/16/2009	MW-18B 9/16/2009	MW-18C 9/16/2009
Ethylbenzene	700	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Propylbenzene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Butylbenzene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-Chlorotoluene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	75	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromoethane	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Allyl Chloride	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.98**	**0.26 J**	0.5 U	0.5 U	0.5 U	**0.45 J**	**1.3**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Propionitrile	--	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	**3.1 J**	25 U	25 U	25 U
Acrylonitrile	--	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroacetonitrile	--	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	**8.5 J**	25 U	25 U	25 U
4-Methyl-2-Pentanone	--	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,3,5-Trimethylbenzene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	1000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.37 J**	0.5 U	0.5 U	**0.21 J**	0.5 U	0.5 U	**0.36 J**	0.5 U	0.5 U	0.5 U	**0.32 J**	0.5 U	0.5 U	**0.45 J**	**6.8**	0.5 U	0.5 U	0.5 U
1-Chlorobutane	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrahydrofuran	--	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
trans-1,4-Dichloro-2-butene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	70	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromochloromethane	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methacrylonitrile	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	5	**1.3**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.26 J**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.33 J**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Xylene (total)	10000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.56**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
m- & p-Xylene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.53**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,2-Dichloroethene	70	0.5 U	0.5 U	0.5 U	0.5 U	**0.52**	0.5 U	0.5 U	0.5 U	**0.21 J**	**0.32 J**	**0.5**	0.5 U	0.5 U	0.5 U	0.5 U	**0.7**	**2.1**	0.5 U	0.5 U	**0.59**	**0.64**	0.5 U	0.5 U	**4.1**
trans-1,2-Dichloroethene	100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl-t-Butyl Ether	--	**0.25 J**	**0.25 J**	**0.74**	0.5 U	0.5 U	**0.66**	**0.57**	0.5 U	**1.4**	**2.6**	0.5 U	**0.26 J**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**3.1**	**1.5**	0.5 U	0.5 U	**0.52**	**0.47 J**	**0.31 J**
1,1-Dichloropropanone	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Tetrachloride	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Hexanone	--	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
2,2-Dichloropropane	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Diethyl Ether	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.33 J**	0.5 U	**0.45 J**	**0.33 J**	0.5 U	0.5 U	**0.24 J**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1,2-Tetrachloroethane	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Acetone	--	**1.8 J**	**2.2 J**	5 U	**2 J**	**2.8 J**	5 U	5 U	**1.6 J**	**2.5 J**	**1.3 J**	**2.5 J**	**1.8 J**	5 U	5 U	5 U	**1.3 J**	5 U	**1.1 J**	5 U	**1.4 J**	**2.6 J**	5 U	5 U	5 U
Chloroform	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachloroethane	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.21 J**	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	--	**0.28 J**	**0.34 J**	0.5 U	0.5 U	0.5 U	0.5 U	**0.59**	0.5 U	0.5 U	**0.35 J**	0.5 U	0.5 U	**0.25 J**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.22 J**	0.5 U	0.5 U	**0.3 J**	0.5 U	0.5 U
Methyl Iodide	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl Chloride	2	0.5 U	0.5 U	0.5 U	0.5 U	**0.4 J**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**1**	**0.27 J**	**0.14 J**	0.5 U	0.5 U	**0.23 J**	**0.31 J**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**1.9**
Methylene Chloride	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Disulfide	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Table 4
Summary of Groundwater Analytical Data - Volatile Organic Compounds
Year 19 Report Cannons Engineering Superfund Site
Bridgewater, Massachusetts

Draft

Parameter	MCL µg/L	MW-1 9/17/2009	MW-3 9/17/2009	MW-4A 9/17/2009	MW-4B 9/17/2009	MW-5 9/17/2009	MW-6A 9/17/2009	MW-6C 9/16/2009	MW-7 9/17/2009	MW-8 9/17/2009	MW-11 9/17/2009	MW-12 9/17/2009	MW-13A 9/17/2009	MW-13B 9/17/2009	MW-14 9/17/2009	MW-15A 9/17/2009	MW-15B 9/17/2009	MW-15C 9/17/2009	MW-16A 9/16/2009	MW-16B 9/16/2009	MW-17A 9/16/2009	MW-17B 9/16/2009	MW-18A 9/16/2009	MW-18B 9/16/2009	MW-18C 9/16/2009
Bromoform	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	--	0.5 U	0.5 U	**0.48 J**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.27 J**	**0.61**	**0.23 J**	**0.53**	**0.23 J**	0.5 U	0.5 U	**0.21 J**	0.5 U	**0.23 J**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Pentachloroethane	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.36 J**	0.5 U	0.5 U	**0.31 J**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.26 J**	**0.8**	0.5 U	**0.23 J**	**0.48 J**	**0.6**	**0.24 J**	0.5 U	**0.53**
1,1,2,2-Tetrachloroethane	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Nitropropane	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methyl Methacrylate	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Naphthalene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Chlorotoluene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	600	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-	0.2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl Acrylate	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethyl Methacrylate	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Isopropylbenzene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Nitrobenzene	--	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 UJ	25 U	25 U	25 U	25 U	25 U	25 U	25 UJ	**7.9 BJ**	**3.6 BJ**	25 U	0.5 U
p-Isopropyltoluene	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Total VOCs	--	3.63	2.79	1.22	2	3.72	0.66	2.15	1.6	4.38	6.59	5.21	3.57	1.31	0	0	3.39	5.16	4.43	1.95	2.92	30.35	4.66	0.47	6.84

General Notes:
1. All samples were analyzed for total Volatile Organic Compounds (VOCs) via EPA Method 524.2 and all laboratory data is presented in µg/L.
2. µg/L = Micrograms per liter
3. MCL = Maximum Contaminant Level allowed in groundwater by the USEPA's National Primary Drinking Water Standards (NPDWS. 40 CFR, Parts 141, 142, and 143).
4. MCL for Xylenes applies to total xylenes.
5. J = Laboratory qualifier indicating the result is estimated.
6. U = Analyte(s) not detected at a concentration above the specified laboratory reporting limit.
7. UJ = Data qualified based on data validation.
8. **Bold** values indicate concentrations reported by the laboratory.

Table 5

Draft

Summary of Groundwater and Surface Water Analytical Data - SVOCs
Year 19 Report Cannons Engineering Superfund Site
Bridgewater, Massachusetts

Parameter	MCL (µg/L)	MW-15C 9/17/2009	MW-16B 9/16/2009	MW-17A 9/16/2009	MW-17B 9/16/2009	MW-18A 9/16/2009	MW-18B 9/16/2009	MW-18C 9/16/2009	MW-6A 9/17/2009	MW-6C 9/16/2009	SW-8 9/18/2009
1,1-Biphenyl	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
1,2,4-Trichlorobenzene	70	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
1,2-Dichlorobenzene	600	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	0.53 J	9.4 U	9.4 U	9.4 U	9.4 U
1,3-Dichlorobenzene	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
1,4-Dichlorobenzene	75	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4,5-Trichlorophenol	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4,6-Trichlorophenol	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4-Dichlorophenol	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4-Dimethylphenol	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4-Dinitrophenol	--	48 U	47 U	47 U	47 U	49 U	47 U	47 U	47 U	47 U	47 U
2,4-Dinitrotoluene	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,6-Dinitrotoluene	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Chloronaphthalene	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Chlorophenol	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Methylnaphthalene	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Methylphenol	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Nitroaniline	--	48 U	47 U	47 U	47 U	49 U	47 U	47 U	47 U	47 U	47 U
2-Nitrophenol	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
3 & 4 Methylphenol	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
3,3-Dichlorobenzidine	--	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
3-Nitroaniline	--	48 U	47 U	47 U	47 U	49 U	47 U	47 U	47 U	47 U	47 U
4,6-Dinitro-2-methylphenol	--	48 U	47 U	47 U	47 U	49 U	47 U	47 U	47 U	47 U	47 U
4-Bromophenyl phenyl ether	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Chloro-3-methylphenol	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Chloroaniline	--	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
4-Chlorophenyl phenyl ether	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Nitroaniline	--	48 U	47 U	47 U	47 U	49 U	47 U	47 U	47 U	47 U	47 U
4-Nitrophenol	--	48 U	47 U	47 U	47 U	49 U	47 U	47 U	47 U	47 U	47 U
Acenaphthene	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Acenaphthylene	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Acetophenone	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Anthracene	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Atrazine	3	0.2 U	0.19 U	0.19 U	0.19 U	0.2 U	0.19 U	0.19 U	0.2 U	0.19 U	0.21 U
Benzaldehyde	--	9.5 UJ	9.4 UJ	9.4 UJ	9.4 UJ	9.7 UJ	9.4 UJ	9.4 UJ	9.4 UJ	9.4 UJ	9.4 UJ
Benzo[a]anthracene	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo[a]pyrene	0.2	0.2 UJ	0.19 UJ	0.19 UJ	0.19 UJ	0.2 UJ	0.19 UJ	0.19 UJ	0.2 UJ	0.19 UJ	0.21 UJ
Benzo[b]fluoranthene	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo[g,h,i]perylene	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo[k]fluoranthene	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U

Table 5

Draft

Summary of Groundwater and Surface Water Analytical Data - SVOCs
Year 19 Report Cannons Engineering Superfund Site
Bridgewater, Massachusetts

Parameter	MCL (µg/L)	MW-15C 9/17/2009	MW-16B 9/16/2009	MW-17A 9/16/2009	MW-17B 9/16/2009	MW-18A 9/16/2009	MW-18B 9/16/2009	MW-18C 9/16/2009	MW-6A 9/17/2009	MW-6C 9/16/2009	SW-8 9/18/2009
Bis(2-chloroethoxy)methane	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Bis(2-chloroethyl)ether	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Bis(2-chloroethyl)ether	--	2 U	1.9 U	1.9 U	1.9 U	2 U	1.9 U	1.9 U	2 U	1.9 U	2.1 U
bis(chloroisopropyl) ether	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Butyl benzyl phthalate	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Caprolactam	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Carbazole	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Chrysene	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Dibenz(a.h)anthracene	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Dibenzofuran	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Diethyl phthalate	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	**0.53 J**
Dimethyl phthalate	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Di-n-butyl phthalate	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Di-n-octyl phthalate	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Fluoranthene	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Fluorene	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Hexachlorobenzene	1	0.2 U	0.19 U	0.19 U	0.19 U	0.2 U	0.19 U	0.19 U	0.2 U	0.19 U	0.21 U
Hexachlorobutadiene	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Hexachlorocyclopentadiene	50	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Hexachloroethane	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Indeno[1.2.3-cd]pyrene	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Isophorone	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Naphthalene	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Nitrobenzene	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
N-Nitrosodi-n-propylamine	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
N-Nitrosodiphenylamine	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Pentachlorophenol	1	0.98 U	0.98 U	0.98 U	0.97 U	0.96 U	0.97 U	0.96 U	0.96 U	0.96 U	0.99 U
Phenanthrene	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Phenol	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Pyrene	--	9.5 U	9.4 U	9.4 U	9.4 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U

General Notes:

1. All samples were analyzed for Semi-Volatile Organic Compounds (SVOCs) via EPA Methods 515.2, 525.2, and 8270C. and all laboratory data is presented in µg/L.
2. µg/L = Micrograms per liter
3. MCL = Maximum Contaminant Level allowed in groundwater by the USEPA's National Primary Drinking Water Standards (NPDWS, 40 CFR, Parts 141, 142, and 143).
4. J = Laboratory qualifier indicating the result is estimated.
5. U = Analyte(s) not detected at a concentration above the specified laboratory reporting limit.
6. UJ = Data qualified based on data validation.
7. **Bold** values indicate concentrations reported by the laboratory.

Table 6

Summary of Groundwater and Surface Water Analytical Data - Metals

Year 19 Report Cannons Engineering Superfund Site

Bridgewater, Massachusetts

Draft

Parameter	MCL µg/L	MW-1 9/17/2009	MW-3 9/17/2009	MW-4A 9/17/2009	MW-4B 9/17/2009	MW-5 9/17/2009	MW-6A 9/17/2009	MW-6C 9/16/2009	MW-7 9/17/2009	MW-8 9/17/2009	MW-11 9/17/2009	MW-12 9/17/2009	MW-13A 9/17/2009	MW-13B 9/17/2009	MW-14 9/17/2009
Aluminum	--	**210**	200 U	200 U	**280**	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Antimony	6	**0.44 J**	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Arsenic	10	10 U	10 U	**9.7**	**5.2**	**3.8 J**	5 U	10 U	10 U	10 U	**15**	**32**	**7.1**	**13**	**5.9**
Barium	2000	**360**	**52**	**190**	**34**	**63**	**7.1 J**	**41**	**23**	**79**	**82**	**57**	**81**	**56**	**16**
Beryllium	4	4 U	4 U	2 U	2 U	2 U	2 U	4 U	4 U	4 U	4 U	2 U	2 U	2 U	0.4 U
Cadmium	5	**3.6**	**0.12**	0.1 U	**0.1**	0.1 U	**0.16**	**0.32**	**0.13**	**0.18**	**0.13**	0.1 U	0.1 U	0.1 U	0.1 U
Chromium	100	20 U	20 U	10 U	10 U	10 U	10 U	20 U	20 U	20 U	20 U	10 U	10 U	10 U	2 U
Copper	1300*	**7.9 J**	10 U	5 U	5 U	5 U	5 U	10 U	10 U	10 U	10 U	5 U	5 U	5 U	1 U
Iron	--	**320**	**53**	**24000**	**11000**	**7400**	50 U	50 U	50 U	**3000**	**24000**	**21000**	**25000**	**43000**	**4500**
Lead	15*	**2.7 J**	**0.63 J**	1.5 U	1.5 U	1.5 U	1.5 U	3 U	3 U	3 U	3 U	1.5 U	1.5 U	1.5 U	0.3 U
Manganese	--	**1700**	**890**	**7800**	**450**	**5900**	**2200**	**330**	**320**	**1200**	**2800**	**6000**	**5000**	**2800**	**580**
Mercury	2	2 U	2 U	1 U	1 U	1 U	1 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U	0.2 U
Selenium	50	20 U	20 U	10 U	10 U	10 U	10 U	20 U	20 U	20 U	20 U	10 U	10 U	10 U	2 U
Silver	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Thallium	2	2 U	2 U	1 U	1 U	1 U	1 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U	0.2 U
Zinc	--	**78**	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**11 J**	20 U	20 U	20 U	20 U

General Notes:

1. All samples were analyzed for metals via EPA Methods 200.7 Rev 4.4 and 200.8 and all laboratory data is presented in µg/L.
2. µg/L = Micrograms per liter
3. MCL = Maximum Contaminant Level allowed in groundwater by the USEPA's National Primary Drinking Water Standards (NPDWS. 40 CFR. Parts 141. 142. and 143).
4. J = Laboratory qualifier indicating the result is estimated.
5. U = Analyte(s) not detected at a concentration above the specified laboratory reporting limit.
6. **Bold** values indicate concentrations reported by the laboratory.
7. * = MCL Action Level

Table 6

Summary of Groundwater and Surface Water Analytical Data - Metals

Year 19 Report Cannons Engineering Superfund Site

Bridgewater, Massachusetts

Draft

Parameter	MCL µg/L	MW-14B 9/16/2009	MW-15A 9/17/2009	MW-15B 9/17/2009	MW-15C 9/17/2009	MW-16A 9/16/2009	MW-16B 9/16/2009	MW-17A 9/16/2009	MW-17B 9/16/2009	MW-18A 9/16/2009	MW-18B 9/16/2009	MW-18C 9/16/2009	SW-8 9/17/2009
Aluminum	--	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Antimony	6	5 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U	5 U	5 U
Arsenic	10	5 U	1 U	**3.1 J**	5 U	10 U	10 U	5 U	**35**	**23**	**27**	**40**	**2 J**
Barium	2000	**15**	**4.5**	**51**	**24**	**71**	**190**	**15**	**15**	**46**	**44**	**20**	**71**
Beryllium	4	2 U	0.4 U	2 U	2 U	4 U	4 U	2 U	2 U	2 U	2 U	2 U	2 U
Cadmium	5	0.5 U	0.1 U	0.1 U	0.1 U	**1.2**	**0.25**	**0.21**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chromium	100	10 U	2 U	10 U	10 U	20 U	20 U	10 U	10 U	10 U	10 U	10 U	10 U
Copper	1300*	5 U	1 U	**3 J**	5 U	10 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U
Iron	--	50 U	50 U	**9500**	**6400**	50 U	**1400**	50 U	**7900**	**12000**	**17000**	**37000**	**13000**
Lead	15*	1.5 U	0.3 U	1.5 U	1.5 U	3 U	3 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Manganese	--	**3800**	**24**	**2200**	**1800**	**2900**	**1900**	**3700**	**5700**	**3600**	**3400**	**2800**	**4000**
Mercury	2	1 U	0.2 U	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
Selenium	50	10 U	2 U	10 U	10 U	20 U	20 U	10 U	10 U	10 U	10 U	10 U	10 U
Silver	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Thallium	2	1 U	0.2 U	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
Zinc	--	20 U	20 U	20 U	20 U	**38**	**30**	20 U	20 U	20 U	20 U	20 U	20 U

General Notes:

1. All samples were analyzed for metals via EPA Methods 200.7 Rev 4.4 and 200.8 and all laboratory data is presented in µg/L.
2. µg/L = Micrograms per liter
3. MCL = Maximum Contaminant Level allowed in groundwater by the USEPA's National Primary Drinking Water Standards (NPDWS, 40 CFR, Parts 141, 142, and 143).
4. J = Laboratory qualifier indicating the result is estimated.
5. U = Analyte(s) not detected at a concentration above the specified laboratory reporting limit.
6. Bold values indicate concentrations reported by the laboratory.
7. * = MCL Action Level